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CATALOGUE

OF THE

UNIVERSITY OF MICHIGAN



1923-1924

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ANN ARBOR  
PUBLISHED BY THE UNIVERSITY  
1924

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University of Michigan  
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# Calendar

1923-1924 and 1924-1925

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## 1923

- June 19-August 29. Summer Session in the Law School.  
June 25-August 3. Summer Session in the Medical School.  
June 25-August 17. Summer School in all Schools and Colleges except Medicine and Law.  
September 17-21. Examinations for Admission.  
September 18. Registration begins.  
September 25. FIRST SEMESTER BEGINS IN ALL SCHOOLS AND COLLEGES OF THE UNIVERSITY.  
November 29. Holiday, Thanksgiving Day.  
December 14. (Evening) Holiday Vacation begins.

## 1924

- January 3. (Morning) Exercises resumed.  
February 8. (Evening) FIRST SEMESTER CLOSES.  
February 7-9. Examinations for Admission to all the Colleges of the University.  
February 11. SECOND SEMESTER BEGINS.  
February 22. Holiday, Washington's Birthday.  
April 11. (Evening) Spring Recess begins.  
April 22. (Morning) Exercises resumed.  
May 30. Holiday, Memorial Day.  
June 13-14. Class Day Exercises in the several Schools and Colleges.  
June 13-14. Alumni Days.  
June 15. BACCALAUREATE ADDRESS, to be delivered by President Marion LeRoy Burton, Ph D., LL.D.

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June 16.	COMMENCEMENT. The Commencement Oration is to be delivered by a speaker to be announced.
June 17-August 28.	Summer Session in the Law School.
June 23-August 1.	Summer Session in the Medical School.
June 23-August 15.	Summer School in all Schools and Colleges of the University except Medicine and Law.
September 15-19.	Examinations for Admission to all the Colleges of the University.
September 16.	Registration begins.
September 23.	FIRST SEMESTER BEGINS IN ALL SCHOOLS AND COLLEGES OF THE UNIVERSITY.
November 27	Holiday, Thanksgiving Day.
December 19.	(Evening) Holiday Vacation begins.
1925	
January 6.	(Morning) Exercises resumed.
February 6.	(Evening) FIRST SEMESTER CLOSES.
February 5-7.	Examinations for Admission to all the Colleges of the University.
February 9.	SECOND SEMESTER BEGINS.
February 22.	Holiday, Washington's Birthday.
April 10.	(Evening) Spring Recess begins.
April 21.	(Morning) Exercises resumed.
May 30.	Holiday, Memorial Day.
June 15.	COMMENCEMENT.
June 22.	Summer Session begins in all the Schools and Colleges (except Law).
September 14-18.	Examinations for Admission to all the Colleges of the University.
September 22.	FIRST SEMESTER BEGINS IN ALL SCHOOLS AND COLLEGES OF THE UNIVERSITY.

1924														1925													
JANUARY							JULY							JANUARY							JULY						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	1	2	3	4	5	..	..	1	2	3	4	5	..	..	1	2	3	4	5	..	..	1	2	3	4	5
6	7	8	9	10	11	12	6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11
13	14	15	16	17	18	19	13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18
20	21	22	23	24	25	26	20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25
27	28	29	30	31	..	..	27	28	29	30	31	..	..	25	26	27	28	29	30	31	26	27	28	29	30	31	..
FEBRUARY							AUGUST							FEBRUARY							AUGUST						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	..	1	2	..	..	..	..	..	1	2	1	2	3	4	5	6	7	..	..	..	..	..	1	2
3	4	5	6	7	8	9	3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8
10	11	12	13	14	15	16	10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15
17	18	19	20	21	22	23	17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22
24	25	26	27	28	29	..	24	25	26	27	28	29	30	..	..	..	..	..	..	..	23	24	25	26	27	28	29
..	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..
MARCH							SEPTEMBER							MARCH							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	..	1	2	..	1	2	3	4	5	6	1	2	3	4	5	6	7	..	1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13	8	9	10	11	12	13	14	6	7	8	9	10	11	12
10	11	12	13	14	15	16	14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19
16	17	18	19	20	21	22	21	22	23	24	25	26	27	22	23	24	25	26	27	28	20	21	22	23	24	25	26
23	24	25	26	27	28	29	28	29	30	..	..	..	..	29	30	31	..	..	..	..	27	28	29	30	..	..	..
30	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
APRIL							OCTOBER							APRIL							OCTOBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	1	2	3	4	5	..	..	1	2	3	4	5	..	..	1	2	3	4	5	..	..	1	2	3	4	5
6	7	8	9	10	11	12	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10
13	14	15	16	17	18	19	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17
20	21	22	23	24	25	26	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24
27	28	29	30	..	..	..	26	27	28	29	30	31	..	26	27	28	29	30	..	..	25	26	27	28	29	30	31
MAY							NOVEMBER							MAY							NOVEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
..	..	..	..	1	2	3	..	..	..	..	..	1	2	..	..	1	2	3	4	5	1	2	3	4	5	6	7
4	5	6	7	8	9	10	2	3	4	5	6	7	8	3	4	5	6	7	8	9	8	9	10	11	12	13	14
11	12	13	14	15	16	17	9	10	11	12	13	14	15	10	11	12	13	14	15	16	15	16	17	18	19	20	21
18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23	22	23	24	25	26	27	28
25	26	27	28	29	30	31	23	24	25	26	27	28	29	24	25	26	27	28	29	30	29	30	..	..	..	..	..
..	..	..	..	..	..	..	30	..	..	..	..	..	..	31	..	..	..	..	..	..	..	..	..	..	..	..	..
JUNE							DECEMBER							JUNE							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	7	8	9	10	11	12	13	7	8	9	10	11	12	13	6	7	8	9	10	11	12
15	16	17	18	19	20	21	14	15	16	17	18	19	20	14	15	16	17	18	19	20	13	14	15	16	17	18	19
22	23	24	25	26	27	28	21	22	23	24	25	26	27	21	22	23	24	25	26	27	20	21	22	23	24	25	26
29	30	..	..	..	..	..	28	29	30	31	..	..	..	28	29	30	..	..	..	..	27	28	29	30	31	..	..

Days of regular college session are printed in Light face type; Sundays, holidays, and vacation in Dark face.

# The Regents

---

MARION L. BURTON, Ph.D., LL.D.,  
PRESIDENT

	TERM EXPIRES
HON. FRANK B. LELAND, <i>Detroit</i> .....	Dec. 31, 1923
HON. WILLIAM L. CLEMENTS, <i>Bay City</i> .....	Dec. 31, 1925
HON. JAMES O. MURFIN, <i>Detroit</i> .....	Dec. 31, 1925
HON. BENJAMIN S. HANCHETT, <i>Grand Rapids</i> ..	Dec. 31, 1927
HON. LUCIUS L. HUBBARD, <i>Houghton</i> .....	Dec. 31, 1927
HON. WALTER H. SAWYER, <i>Hillsdale</i> .....	Dec. 31, 1929
HON. VICTOR M. GORE, <i>Benton Harbor</i> .....	Dec. 31, 1929
HON. JUNIUS E. BEAL, <i>Ann Arbor</i> .....	Dec. 31, 1931
HON. RALPH STONE, <i>Detroit</i> .....	Dec. 31, 1931

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HON. THOMAS E. JOHNSON, *Lansing*,  
SUPERINTENDENT OF PUBLIC INSTRUCTION

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ROBERT A. CAMPBELL,  
TREASURER OF THE BOARD

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For 1923 and 1924

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REGENTS LELAND, SAWYER, and HUBBARD.

### Salaries

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### Buildings and Grounds

REGENTS CLEMENTS, HANCHETT, and HUBBARD.

### Library

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### Promotion of Research

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### Student Welfare

REGENTS MURFIN, HANCHETT, and BEAL.

---

\* The first named member of each committee is the chairman. The President is *ex officio* a member of all committees.

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**Summer Session, 1923**

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PROFESSOR ARTHUR G. HALL.

#### Financial Secretary of the Michigan Union

MR. L. PAUL BUCKLEY.



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ROBERT MARK WENLEY, D.Phil., Sc.D., Litt.D., LL.D., D.C.L., *Professor of Philosophy.*

VICTOR HUGO LANE, C.E., LL.B., *Fletcher Professor of Law and Law Librarian.*

HORACE LAFAYETTE WILGUS, M.S., *Professor of Law.*

ARTHUR GRAVES CANFIELD, A.M., L.H.D., *Professor of the Romance Languages and Literatures.*

REUBEN PETERSON, A.B., M.D., *Professor of Obstetrics and Gynecology and Bates Professor of Diseases of Women and Children.*

†FRED NEWTON SCOTT, Ph.D., *Professor of Rhetoric and Journalism.*

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\* The names of Professors (including Librarian), Associate Professors, Assistant Professors, and other officers of instruction are placed in their appropriate divisions, according to term of appointment and length of continuous service with present rank.

† The dagger preceding a name indicates that the member of the Faculty is absent on leave.

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LESLIE FREDERICK RITTERSHOFER, D.D.S., *Demonstrator of Clinical Dentistry.*

HARRY WADE SHIELDS, D.D.S., *Demonstrator of Clinical Dentistry.*

PETER EDWARD BRENDER, B.C.E., *Teaching Assistant in Mechanical Engineering.*

CHARLES W. CLARKE, M.S., *Teaching Assistant in General Chemistry.*

RALPH FREDERICK COHN, B.S.E., *Teaching Assistant in General Chemistry.*

WILLIAM FREDERICK MOORE, B.S.E., *Teaching Assistant in Mechanical Engineering.*

JOHN C. PERNERT, B.S., *Teaching Assistant in General Chemistry.*

MARVIN SUMMERS PITTMAN, Ph.D., *Teaching Assistant in Education.*

ALFRED W. SCHLUCHTER, M.S., *Teaching Assistant in General Chemistry.*

CLIFFORD K. SLOAN, A.B., *Teaching Assistant in General Chemistry.*

EDWIN FROST SMELLIE, M.S.E., *Teaching Assistant in Mechanical Engineering.*

CARLETON N. SMITH, A.B., *Teaching Assistant in General Chemistry.*

GRANT LEE STAHLY, B.S., *Teaching Assistant in General Chemistry.*

WILLIAM HERMAN STOKES, M.D., *Teaching Assistant in Ophthalmology.*

AMOS CAREY ANDERSON, A.B., *Assistant in Psychology.*

JOHN EDWARD ANDERSON, A.B., *Assistant in Botany.*

MARGARET ELIZABETH ARMSTRONG, Ph.B., M.D., *Research Assistant in Pathology.*

WERNER E. BACHMANN, B.S.E., *Research Assistant in Organic Chemistry.*

MAURINE BAMBER, B.S., *Assistant in Zoölogy.*

CLARENCE HARLOW BLANCHARD, A.M., *Assistant in Education.*

THEODORE LISTON BLISS, B.S., *Assistant in Bacteriology.*

GEORGE SYDNEY BUCHANAN, A.B., *Assistant in Geology.*

JOHN CLIFFORD BUGHER, A.B., *Assistant in Bacteriology.*

CHARLES STILWELL CAPP, A.M., *Assistant in Physiology.*

- RUTH CARPENTER CHILD, A.B., *Assistant in English.*
- FORD ELMORE CURTIS, A.B., *Assistant in English.*
- ELMER LOUIS DEGOWIN, A.B., *Assistant in Bacteriology.*
- ROBERT RICHARD DIETERLE, M.D., *Assistant in Psychiatry.*
- WALTER TORRENCE DUNN, A.M., *Assistant in Political Science.*
- KATHERINE A. FELLOWS, *Assistant in Botany.*
- SOUTHARD TOLCHARD FLYNN, A.B., *Assistant in Bacteriology.*
- GERALD WILLIS FOX, A.B., *Assistant in Physics.*
- LAURA FRANCES FRENCH, A.B., *Assistant in Mathematics.*
- JOHN STANLEY GRAY, A.B., *Assistant in Public Speaking.*
- ELISHA S. GURDJIAN, A.B., *Assistant in Anatomy.*
- KATHERINE WELLS HARRINGTON, A.B., *Assistant in Sociology.*
- WALTER LESLIE HARRIS, A.M., *Assistant in Vocational Education.*
- MELVILLE HARRISON HATCH, A.M., *Assistant in Zoölogy.*
- GEORGE WILLIAM HULBERT, A.B., *Assistant in Public Speaking.*
- JAMES FRANKLIN JOHANTGEN, B.S., *Assistant in Physiology.*
- MARY OLMSTEAD JOHNSON, *Teaching Assistant in Freehand Drawing.*
- BESSIE BERNICE KANOUSE, M.S., *Assistant in Botany.*
- GEORGE FREDERICK KEIPER, Jr., A.B., *Assistant in Pharmacology.*
- PETER JOHN KLAPHAACK, A.B., *Assistant in Botany.*
- JOHN KUIPER, A.M., *Assistant in Philosophy.*
- ROSEMARY LAWRENCE, *Teaching Assistant in Freehand Drawing.*
- GEORGE TRUMAN LEWIS, B.S., *Assistant in Physiological Chemistry.*
- RICHARD E. McARDLE, B.S.F., *Assistant in Mineralogy.*

DEAN BENJAMIN McLAUGHLIN, A.B., *Assistant in Astronomy.*

ALEXANDER MASLOW, A.B., *Assistant in Mathematics.*

HELEN ELIZABETH MASTER, A.B., *Assistant in Rhetoric.*

DANIEL JACOB MILLER, A.B., *Assistant in Surveying.*

LOWELL KENDALL MOWER, B.S.C.E., *Assistant in Geology.*

VETA THORPE NEBEL, A.M., *Assistant in Rhetoric.*

THEODORA NELSON, A.B., *Assistant in Zoölogy.*

HAZEL RUTH PRENTICE, M.S., *Assistant in Internal Medicine.*

SIGMOND KLUSS PROCTOR, A.B., *Assistant in Astronomy.*

HOWARD GARNER SCAHILL, A.B., *Assistant in Psychology.*

FERDINAND RIPLEY SCHEMM, B.S., *Assistant in Pharmacology.*

THEOPHIL ERNEST SCHMIDT, A.B., *Assistant in Anatomy.*

FRANCIS AXTELL SCOTT, B.S., *Assistant in Physiology.*

DEAN CAMPBELL SEITZ, B.S.M.E., *Assistant in Mechanical Engineering.*

CELIA MARIE SLACK, B.S., *Assistant in Zoölogy.*

E. RAYMOND SMITH, A.M., *Assistant in Physics.*

WALTER DENNIS STROTNER, Ph.C., *Assistant in Pharmacy.*

JOHN ADAMS TAYLOR, A.M., *Assistant in Public Speaking.*

BURTON DOAN THUMA, B.S., *Assistant in Psychology.*

E. FORREST WALCOTT, A.B., *Assistant in Political Science.*

CHARLES WHITE WATERS, A.M., *Assistant in Botany.*

WILLIAM TAYLOR WATSON, A.B., *Assistant in Journalism.*

FRANK WHITEHOUSE, A.M., *Research Assistant in Education.*

CAROLINE GAY WILGUS, A.B., *Assistant in English.*

ROBERT JOSEPH COOPER, A.B., *Assistant in Physiology.*

**Non-Resident Lecturers on Special Topics for 1923-1924**

OSSIAN COLE SIMONDS, C.E., Chicago, Ill., *Lecturer on Landscape Gardening.*

FRANK LEVERETT, B.S., Ann Arbor, *Lecturer on Glacial Geology.*

HENRY STEFFENS, Jr., Detroit, *Lecturer of Political Science.*

LENT DAYTON UPSON, Ph.D., Detroit, *Professorial Lecturer on Political Science.*

STUART APPLETON COURTIS, Ph.D., Detroit, *Lecturer on Education.*

PERCIVAL C. LOWERY, D.D.S., Detroit, *Lecturer on Prosthetic Dentistry.*

LESLIE ANDERSON BUTLER, A.M., Ann Arbor, *Lecturer on Education.*

FRED R. JOHNSON, A.B., LL.B., Detroit, *Lecturer on Sociology.*

NELLIE LOUISE PERKINS, Ph.D., Detroit, *Lecturer on Sociology.*

JOHN ERVIN KIRKPATRICK, Ph.D., *Lecturer on Political Science.*

ROBERT GORDON RODKEY, A.M., *Lecturer on Economics.*

JAMES A. VEASEY, LL.B., *Lecturer on Oil and Gas Mining Law.*

WILLIAM JOHN NORTON, A.B., *Lecturer on Sociology.*

CHARLES E. RIGHTOR, *Lecturer on Political Science.*

PALMER CHRISTIAN, *University Organist.*

ROBERT BRIDGES, D.Litt., LL.D., *Honorary Fellow in Creative Art.*

THOMAS CALLAN HODSON, *Lecturer on Anthropology.*

**Non-Resident Instructors in Summer Session of 1923**

FROM THE UNIVERSITY FACULTY FOR 1922-1923

CARL ORTWIN SAUER, Ph.D., *Professor of Geography, and Director of the Field Courses in Geography and Geology, University of California.*

WILBUR PERE CALHOUN, A.M., *Assistant Professor of Economics.*

RAINARD BENTON ROBBINS, Ph.D., *Assistant Professor of Mathematics.*

WILLIAM HENRY YEATMAN, *Instructor in Shop Practice.*

RAYMOND WALTER BARNARD, M.S., *Instructor in Mathematics and Insurance.*

GEORGE DUNCAN WILNER, A.M., *Instructor in Public Speaking.*

CHARLES STEVENS FAZEL, Ph.D., *Instructor in Physics.*

HARRY C. BARNETT, A.M., *Instructor in Romance Languages.*

HARVEY ALEXANDER SIMMONS, M.S., *Instructor in Mathematics.*

AGAPITO REY, A.M., *Instructor in Romance Languages.*

AMOS HENRY HERSH, Ph.D., *Instructor in Zoölogy.*

EDWARD ARTLEY GEE, A.B., *Instructor in Economics.*

IRVING WATERLOO GREENE, A.B., M.D., *Instructor in Internal Medicine.*

LEON B. SLATER, A.M., *Instructor in Psychology.*

FROM OTHER INSTITUTIONS

EARL L. BEDELL, *Instructor in Household Mechanics, Northwestern High School, Detroit.*

JOSEPH WALTER BINGHAM, A.B., J.D., *Professor of Law, Leland Stanford, Jr., University.*

ORVILLE G. BRIM, Ph.D., *Professor of Rural Education, Cornell University.*

THOMAS CALLANDER, A.M., *Professor of Greek, Queen's University.*

KARL TAYLOR COMPTON, Ph.D., *Professor of Physics, Princeton University.*

THOMAS M. DEAM, *Principal High School, Decatur, Illinois.*

GEORGE D. FARLEY, A.B., *Battle Creek; Instructor in Practical Embalming.*

FRANK CALEB GATES, Ph.D., *Assistant Professor of Botany, Kansas State Agricultural College.*

MARGARET T. GATES, *Manhattan, Kansas; Dean of Women at the Biological Station.*

HENRY ALLAN GLEASON, Ph.D., *Assistant Director, Botanical Garden, New York, N. Y.*

- EMMA GRATTAN, *Supervisor of Public School Art, Cedar Rapids, Iowa.*
- J. PENROSE HARLAND, Ph.D., *Assistant Professor of Greek, University of North Carolina.*
- HERBERT BARKER HUNGERFORD, Ph.D., *Professor of Entomology, University of Kansas.*
- MABEL HUTCHINGS, *Instructor in Public School Art, Grand Rapids.*
- FRANCIS HARPER, A.B., *Instructor in Zoölogy, Cornell University.*
- FRANK A. JENSEN, A.M., *Superintendent of Schools, Rockford, Illinois.*
- MINNA E. JEWELL, Ph.D., *Assistant Professor of Zoölogy, Milwaukee-Downer College.*
- JAMES G. JOHNSON, Ph.D., *Assistant Professor of History, University of Georgia.*
- CLARENCE DARWIN KINGSLEY, A.M., *State Inspector of High Schools, Department of Education, Massachusetts.*
- AUGUST CHARLES KREY, Ph.D., *Associate Professor of History, University of Minnesota.*
- ERVIN EUGENE LEWIS, Ph.D., *Superintendent of Schools, Flint, Michigan.*
- GEORGE ELWOOD NICHOLS, Ph.D., *Assistant Professor of Botany, Sheffield Scientific School, Yale University.*
- FRANCIS SAMUEL PHILBRICK, LL.B., Ph.D., *Professor of Law, University of Illinois.*
- FRANK G. PICKELL, A.M., *Superintendent of Schools, Montclair, New Jersey.*
- WILLIAM HENRY PYLE, Ph.D., *Professor of Education, University of Missouri.*
- JESSE PERRY ROWE, Ph.D., *Professor of Geology, University of Montana.*
- FREDERICK ALBERT SAUNDERS, Ph.D., *Associate Professor of Physics, Harvard University.*
- OSCAR D. SKELTON, Ph.D., *Professor of Political and Economic Sciences, Queen's University.*

JEAN PAUL SLUSSER, A.M., New York, N. Y.; *Lecturer on Freehand Drawing and Painting.*

KENNETH G. SMITH, M.E., *State Supervisor of Industrial Education, Lansing.*

CLARENCE STONE YOAKUM, Ph.D., *Associate Professor of Applied Psychology, Carnegie Institute of Technology.*

AZARIAH SMITH ROOT, A.M., *Librarian and Professor of Bibliography, Oberlin College.*

HELEN MARTIN, A.M., *Children's Librarian, East Cleveland, Ohio.*

JEAN HAWKINS, B.M., B.L.S., *New York State Library School.*

ARCHIE HAHN, LL.B., *Instructor in Track Athletics and Athletic Training, Princeton University.*

ADOLPH G. SCHULTZ, *Director of Athletics, University of Detroit.*

**Special Non-Resident Lecturers in Summer Session of 1923**

FREDERICK S. BOAS, LL.D., *Inspector, London County Council, Education Department, London, England.*

BENJAMIN FRANKLIN BUCK, A.B., *Principal, Nicholas Senn High School, Chicago, Illinois.*

ALEXANDER DEAN, *Director of the Little Theater, Dallas, Texas.*

LUCIUS LEE HUBBARD, Ph.D., *Regent of the University.*

HENRY CROCKER HUTCHINS, B.S., New York, N. Y.

CHARLES SIMPSON MEEK, *Superintendent of Schools, Toledo, Ohio.*

ANDREW FLEMING WEST, Ph.D., LL.D., *Dean of the Graduate School, Princeton University.*

**Library**

WILLIAM WARNER BISHOP, A.M., *Librarian.*

FRANCIS LEE DEWEY GOODRICH, A.M., B.L.S., *Associate Librarian.*

GILBERT HARRY DOANE, A.B., *Assistant Librarian.*

AMANDA MATHILDA BELSER, *In Charge of Accessions and Orders.*



- ESTHER ANNE SMITH, A.B., *Head Cataloger.*
- EUNICE WEAD, A.B., *Curator of Rare Books.*
- MARGARET INGLIS SMITH, A.B., *Superintendent of Main Reading Room.*
- FREDERICKA BOTSFORD GILLETTE, A.M., B.L.S., *Superintendent of Circulation and Stacks.*
- EDITH THOMAS, A.B., *In Charge of Library Extension Service.*
- ELLA MAY HYMANS, A.B., *Senior Cataloguer.*
- GERTRUDE MAGINN, A.B., *Assistant to the Librarian.*
- CONSTANCE MABEL WINCHELL, A.B., *In Charge of Medical Reading Room.*
- CLARE MULLETT, *In Charge of Graduate Reading Room.*
- JEAN SHARPE, A.M., *In Charge of Graduate Reading Room.*
- HENRIETTE SCRANTON, A.B., *In Charge of Graduate Reading Room.*
- CORDELIA LAURA HAAGEN, *Assistant in Charge of Exchanges and Duplicates.*
- ALICE S. JOHNSON, A.M., *Assistant in Charge of Binding.*
- ELINOR MULLETT, A.B., *Senior Cataloger.*
- ROSCOE LORING DUNN, A.B., *In Charge of Graduate Reading Room.*
- EDWARD HENRY EPPENS, B.D., *Assistant in Main Reading Room.*
- REBECCA WILSON, A.B., *Assistant in Main Reading Room.*
- FLORENCE DAVY PETERS, A.B., *In Charge of Science Library.*
- EMILY BELLE HENDRICKS, A.B., *General Service Assistant.*
- NINA KATE PRESTON, *Reviser.*
- CATHARINE MARIA CAMPBELL, A.B., *Reviser.*
- WILLIAM RANDALL, A.M., *Assistant Classifier.*
- HILDA RANKIN, *Searcher.*
- ELANA KNOTT TAYLOR, A.M., *In Charge of East Engineering Library.*

MARGARET KIRKPATRICK, A.B., *In Charge of Dental Library.*  
VIVIAN BAKER, A.B., *In Charge of Engineering Library.*  
MABEL FIDELIA McLOUTH, *In Charge of Chemistry Library.*  
THERESA ALVINA GRUBE, B.L., *Head Filer.*  
EVELYN HARRIET WALKER, *Cataloger.*  
DELLA LUGINBUHL EGLY, A.B., *In Charge of Study Halls.*  
LALAH ELSA HUEHL, *Assistant in Library Extension Service.*  
EMMA GRACE HOLLAND, *Assistant Order Department.*  
NELLIE T. THORNTON, *In Charge of Charging Desk.*  
BERTHA LOUIS SHAW, *In Charge of Periodical Room.*  
MARIE DONEGAN, *Cataloger.*  
KATHLEEN L. BAILEY, *Assistant Secretary to the Librarian.*  
EDITH TAYLOR FLEMING, *Junior Assistant Order Department.*  
BEATRICE A. SNIDER, A.B., *Accessions Assistant Order Department.*  
SYLVIA RALSTON SMITH, A.B., *Cataloger.*

**Law Library**

VICTOR H. LANE, C.E., LL.B., *Librarian.*  
BLANCHE E. HARROUN, *Assistant Librarian.*  
BERTHA CARMAN HERBST, A.B., *Assistant to the Librarian.*  
VOLNEY A. CHAPIN, *Assistant.*

**William L. Clements Library of American History**

RANDOLPH GREENFIELD ADAMS, Ph.D., *Custodian-Librarian.*  
ELSIE NELLIS STEWART, A.B., *Assistant.*

**Davis Library of Highway Engineering and Highway Transport**

HARRIET EMILIE LAMBERT, *Librarian in Charge.*

**Museums and Laboratories**

†JOHN AIREY, B.S., *Director of the Engineering Shops.*  
ALEXANDER GRANT RUTHVEN, Ph.D., *Superintendent of the University Museum and Director of the Museum of Zoölogy.*

56      *Members of the Faculty and Other Officers*

---

HARLEY HARRIS BARTLETT, A.B., *Director of the Botanical Gardens.*

CARL EUGENE GUTHE, Ph.D., *Associate Director of Anthropology in the University Museum.*

LEROY NELSON PATTISON, B.D., A.M., *Assistant Curator of the Alumni Memorial Hall.*

ORLAN WILLIAM BOSTON, M.S., *Acting Director of the Engineering Shops.*

†NORMAN A. WOOD, *Curator of Birds in the Museum of Zoölogy.*

FRANCES JEWITT DUNBAR, A.B., *Assistant in Charge of the Lantern Slide Shop.*

SOBEI IDE, M.D., *Serologist in the University Psychopathic Hospital.*

FREDERICK McMAHON GAIGE, A.B., *Instructor Curator of Entomology in the Museum of Zoölogy.*

LEE RAYMOND DICE, Ph.D., *Instructor Curator of Mammals in*

*Frieda Cobb Blanchard, Ph.D., Assistant Director of the Museum of Zoölogy.*

CARL LEAVITT HUBBS, A.M., *Instructor Curator of Fishes in the Museum of Zoölogy.*

MINA LOUISE WINSLOW, A.M., *Curator of Mollusks in the Museum of Zoölogy.*  
*Botanical Gardens.*

HELEN THOMPSON GAIGE, A.M., *Assistant Curator of Reptiles and Amphibians in the Museum of Zoölogy.*

HENRY JULIUS COLLIAU, *Foreman of Instrument Shop at the Observatory.*

CHARLES LEO MOODY, B.S., *Superintendent of the Nichols Arboretum.*

GEORGE JOHN LUTZ, Jr., *Accountant and Laboratory Attendant in Bacteriology.*

BURR F. ANDERSON, *Technical Assistant in Roentgenology.*

FREDERICK JAMES BOLTON, *Technical Assistant in Homoeopathic Laboratories.*

JOHN BONIN, *Instrument Room Assistant in Surveying.*

DANIEL J. BORDEN, *Laboratory Attendant in Physiology and Pharmacology.*

WILLIAM HENRY BUETTNER, *Préparateur in Paleontology.*

MAY VARNEY CANNON, B.S., *Assistant in the Herbarium.*

GUSTAVE ADAM RITZ, *Curator of the Physics Laboratory.*

LAURA ALINE CAKE KERLIKOWSKI, A.B., *Laboratory Technician in Internal Medicine.*

SOPHIA MARY HARTMAN, *Technical Assistant in Pathology.*

FRED CARL LUENZER, *Laboratory Attendant in Bacteriology.*

HARRY FRANKLIN MINKLEY, *Technical Assistant in Roentgenology.*

ANNA OAKES, *Laboratory Assistant in Serology.*

MARY JOSEPHINE RUSCHE, *Technical Assistant in Psychiatry.*

WANDA ANN SEEHAFFER, *Technical Assistant in Pathology.*

EVANGELINE HELEN SHOEBRIDGE, *Custodian of the Zoölogy Laboratory.*

LEROY JAMES SMITH, *Technical Assistant in Anatomy.*

CHARLES H. HALL, *Stock and Dispensing Clerk in the College of Dental Surgery.*

HAROLD F. PALMER, *Foreman in Dispensing in Chemistry.*

WESLEY O. JENNINGS, *Technical Assistant in Pathology.*

ADA LENORA OLSON, A.B., *Assistant in Entomology in the Museum.*

NUEL E. SMOCK, *Instrument Maker in Astronomy.*

MARTHA STORER GRIM, *Administrative Assistant in the Museum.*

MARGARET ANNE AVERY, A.B., *Technical Assistant in the Homoeopathic Laboratory.*

BERT BANTA, *Shop Superintendent, Physics Laboratory.*

GEORGE HAGER BLUM, *Helper in Botany.*

LAURA A. CANNON, A.M., *Assistant in the Herbarium.*

CHARLES BERNARD COE, Jr., B.S.E., *Assistant in Marine Engineering.*

WILLIAM LOUIS CRISTANELLI, *Technical Assistant in Zoölogy.*

EILEEN WHITEHEAD ERLANSON, B.S., *Assistant in the Herbarium.*

ERWIN W. ESSLINGER, *Stockkeeper, Chemical Storehouse.*

JESSIE ANNA FUHRMAN, *Technical Assistant in Pathology.*

GEORGE GLITZERNHIRN, *Instrument Maker, Physics Laboratory.*

CARL ROBERT BRAUN, *Dispensing Assistant in Chemistry.*

BELTON EIDING, *Dispensing Assistant in Chemistry.*

HELEN J. HINCKLEY, R.N., *Assistant in Surgery.*

MARINA LOUISE HOLMES, A.M., *Technical Assistant in Zoölogy.*

PETKO L. IVANOFF, *Dispensing Assistant in Chemistry.*

WILLIAM FRANKLIN JEWELL, *Technical Assistant in Botany.*

HOWARD JAMES KERR, *Technical Assistant in Pathology.*

ACHILLES deKHOTINSKY, *Designer and Instrument Maker, Physics Laboratory.*

LILLIAN M. MUNRO, A.B., *Statistician, Bureau of Educational Reference and Research.*

JOHN HENRY ROBINSON, *Assistant in Pathology.*

HERMAN ROEMER, *Instrument Maker, Physics Laboratory.*

DOROTHY RUMPH, *Assistant in Serology.*

LEO ANTON SCHMIDT, A.B., *Assistant in Accounting.*

LOUISE SKILLEN, *Technical Assistant in Pathology.*

ADRIAN PETER WEZEL, *Head Gardener, Botanical Gardens.*

JACOB JOHN VAN AKKERAN, *Assistant Gardener, Botanical Gardens.*

ALDEN W. VAN BENSCHOTEN, *Dispensing Assistant in Chemistry.*

ERNEST G. WILLOUGHBY, *Storekeeper, Physiological Chemistry.*

LELAND W. WILLOUGHBY, *Dispensing Assistant in Chemistry.*

DRYANT WALKER, A.B., LL.B., Sc.D., Detroit, *Honorary Curator of Mollusca.*

WILLIAM W. NEWCOMB, B.S., M.D., Detroit, *Honorary Curator of Lepidoptera.*

ARTHUR S. PEARSE, Ph.D., Madison, Wis., *Honorary Curator of Crustacea.*

BRADSHAW H. SWALES, LL.M., Grosse Isle, *Honorary Curator of Birds.*

ARTHUR W. ANDREWS, Detroit, *Honorary Curator of Coleoptera.*

E. B. WILLIAMSON, A.B., Bluffton, Ind., *Honorary Curator of Odonata.*

JAMES S. ROGERS, A.M., Gainesville, Fla., *Honorary Curator of Diptera.*

CALVIN GOODRICH, Toledo, O., *Honorary Curator of Mollusca.*

WALTER E. HASTINGS, South Lyons, *Honorary Curator of Birds.*

WILBERT B. HINSDALE, M.S., A.M., M.D., *Custodian of Michigan Archaeology.*

#### Hospitals

CHRISTOPHER G. PARNALL, A.B., M.D., *Director of the University Hospital.*

ROBERT GEORGE GREVE, *Business Officer of the University Hospital.*

BARBARA HAECKER BARTLETT, B.S., *Director of Courses in Public Health Nursing.*

JAMES PERRY BRIGGS, Ph.C., *Pharmacist in the University Hospital.*

ALICE LIVIA LAKE, B.S., R.N., *Educational Director, Training School for Nurses.*

MAGNA C. TILLOTSON, B.S., R.N., *Instructor in the Training School for Nurses.*

RUTH V. WHEELOCK, M.A., R.N., *Instructor in the Training School for Nurses.*

RUTH KAPITZKY DANIELS, A.B., R.N., *Instructor in the Training School for Nurses.*

ETHYL M. NEELANDS, R.N., *Instructor in the Training School for Nurses.*

RUBY C. CARLTON, A.B., *Instructor in Social Service.*

MARIE VIRGINIA WANZECK, A.B., *Assistant to the Superintendent of Nurses.*

ELLA ELIZABETH McNEIL, B.S., *Assistant to the Superintendent of Nurses.*

GERTRUDE JUDD WISHART, R.N., A.B., *Assistant to the Superintendent of Nurses.*

DOROTHY KETCHAM, A.M., *Director of Social Service.*

ELMIE WARNER MALLORY, A.M., *Director of Social Service, Psychopathic Hospital.*

MARION LYDIA CLARK, Ph.D., *Chief Occupational Therapist.*

DONALD MANLEY MORRILL, B.S., M.D., *Chief Resident Physician.*

AGNES C. TENNANT, R.N., *Chief Nurse, Psychopathic Hospital.*

LAWRENCE EDWARD McCAFFREY, M.D., *Resident in Obstetrics and Gynecology.*

WILLIAM L. BETTISON, B.S., M.D., *Senior Interne in Internal Medicine.*

NEWTON WARREN BOURNE, B.S., M.D., *Senior Interne in Surgery.*

CARROLL STOLL DAVENPORT, M.D., *Senior Interne in Roentgenology.*

EUGENE R. ELZINGA, M.D., *Senior Interne in Surgery.*

ISADOR HAROLD FRIEDMAN, M.D., *Senior Interne in Internal Medicine.*

EDWARD P. GILLETTE, M.D., *Senior Interne in Surgery.*

ANGUS G. GOETZ, M.D., *Senior Interne in Surgery.*

JOHN LAWRENCE LOOMIS, M.D., *Senior Interne in Surgery.*

RALPH O. RYCHENER, A.B., M.D., *Senior Interne in Ophthalmology.*

NOEL FRANKLIN SHAMBAUGH, B.S., M.D., *Senior Interne in Internal Medicine.*

LESTER MERRIL WIEDER, M.D., *Senior Interne in Dermatology.*

EDWARD ADOLPH WISHROPP, M.D., *Senior Interne in Pediatrics.*

PAUL McNARY MOORE, B.S., M.D., *Senior Interne in Pediatrics.*

EARL CARROLL YATES, M.D., *Senior Interne in Otology.*

CLARENCE HARRISON CREGO, Jr., B.S., *Interne in Internal Medicine.*

PETER H. DARPIN, M.D., *Interne in Surgery.*

JOHN K. DeVRIES, M.D., *Interne in Surgery.*

ENOCH WALTER HALL, A.B., M.D., *Interne in Roentgenology.*

ALBERT C. KERLIKOWSKA, M.D., *Interne in Ophthalmology.*

JOHN LABADIE, M.D., *Interne in Neurology.*

JAMES MORTIMER PIERCE, M.D., *Interne in Obstetrics and Gynecology.*

FREDERICK G. RANSOM, M.D., *Interne in Surgery.*

HARRY K. RANSOM, M.D., *Interne in Surgery.*

WILLIAM AXEL SMITH, M.D., *Interne in Neurology.*

JOHN F. SONDER, M.D., *Interne in Pediatrics.*

WADE W. STONE, M.D., *Interne in Surgery.*

ROBERT A. HOWARD, *Storekeeper, University Hospital.*

WILLIAM J. MILLS, *Assistant Business Officer.*

S. MARGARET GILLAM, A.M., *Director of Housekeeping and Dietetics.*

MARY E. ROCKWOOD, *Assistant Director of Housekeeping.*

HELEN M. BAKER, B.S., *Administrative Dietitian.*

MARTHA AGATHA KUSTERER, *Secretary to the Superintendent of Nurses.*

#### **Gymnasiums and Athletics**

GEORGE AUGUSTUS MAY, M.D., *Director of the Waterman Gymnasium.*

FIELDING HARRIS YOST, LL.B., *Director of Intercollegiate Athletics.*

†MARION OLIVE WOOD, *Director of the Barbour Gymnasium.*



MARGARET BELL, B.S., M.D., *Acting Director of the Barbour Gymnasium.*

ELMER DAYTON MITCHELL, A.M., *Director of Intra-Mural Sports.*

†MARION DAWLEY, B.S., *Instructor in Physical Education.*

JOHN PETER BAKER, *Instructor in Physical Education.*

GERTRUDE MURILLA NOETZEL, A.B., *Instructor in Physical Education.*

LLEWELLYN WILLETT WILBURN, A.M., *Instructor in Physical Education.*

ELSIE LOUISE ERLEY, A.M., *Instructor in Physical Education.*

MELDON ADA EVERETT, *Instructor in Physical Education.*

ETHEL McCORMICK, *Instructor in Physical Education.*

MEYER MONROE BROWN, *Instructor in Physical Education.*

CLAIR VanNORMAN LANGTON, B.S. in Ed., *Instructor in Physical Education.*

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# University of Michigan

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## THE UNIVERSITY AND THE STATE

The University of Michigan is a part of the public educational system of the State. The governing body of the institution is a Board of Regents, elected by popular vote for terms of eight years, as provided in the Constitution of the State. In accordance with the laws of the State, the University aims to complete and crown the work that is begun in the public schools by furnishing ample facilities for liberal education in literature, science, and arts, and for thorough professional study of engineering, architecture, medicine, law, pharmacy, and dentistry. Through the aid that has been received from the United States and from the State, it is enabled to offer its privileges, with only moderate charges, to all persons of either sex, who are qualified for admission. While Michigan has endowed her University primarily for the higher education of her own sons and daughters, it must be understood that she also opens the doors of the institution to all students wherever their homes. It is in this broad, generous, and hospitable spirit that the University has been founded, and that it endeavors to do its work.

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- I. THE COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS.
- II. THE COLLEGES OF ENGINEERING AND ARCHITECTURE.
- III. THE MEDICAL SCHOOL.\*
- IV. THE LAW SCHOOL.
- V. THE COLLEGE OF PHARMACY.
- VI. THE COLLEGE OF DENTAL SURGERY.
- VII. THE SCHOOL OF EDUCATION.
- VIII. THE GRADUATE SCHOOL.

In a Summer Session regular courses of instruction are given in the College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, the Medical School, the Law School, the College of Pharmacy, the School of Education, and the Graduate School, together with a School of Library Methods and a Biological Station.

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\* On July 1, 1922, the Homoeopathic Medical School, heretofore a distinct unit of the University, was amalgamated with the Medical School.

On the completion of prescribed courses of study degrees are conferred by the University as follows: In the College of Literature, Science, and the Arts, the degrees of Bachelor of Arts and Bachelor of Science; in the Colleges of Engineering and Architecture, the degrees of Bachelor of Science in Engineering and Bachelor of Science in Architecture; in the Medical School, the degree of Doctor of Medicine; in the Law School, the degrees of Bachelor of Laws, Juris Doctor, and Master of Laws; in the College of Pharmacy, the degrees of Pharmaceutical Chemist and Bachelor of Science (in Pharmacy); in the College of Dental Surgery, the degree of Doctor of Dental Surgery; in the School of Education, the degrees of Bachelor of Arts in Education and Bachelor of Science in Education; in the Graduate School, the degrees of Master of Arts, Master of Science, Master of Landscape Design, Master of Science in Engineering and in Architecture, Master of Science (in Pharmacy), Master of Science in Public Health, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Marine Engineer and Naval Architect, Doctor of Philosophy, Doctor of Science, and Doctor of Public Health.

Students in any School or College of the University may enter the classes in any other School or College, upon obtaining permission from the two faculties.

## THE UNIVERSITY SENATE

The University Senate is a body composed of the President of the University, the Professors, Associate Professors, and Assistant Professors of all the Schools and Colleges, and the Librarian. The University Senate is authorized to consider any subject pertaining to the interests of the University, and to make recommendations to the Regents in regard thereto.

The Senate Council consists of the President of the University, the Deans of the several Schools and Colleges, the Dean of Students, the Dean of Women, the Assistant to the President, and members elected by the several faculties as follows: from the College of Literature, Science, and the Arts, two; from the Colleges of Engineering and Architecture, the Medical School, the Law School, the College of Pharmacy, the College of Dental Surgery, and the School of Education, one each.

The functions of the Senate Council are as follows:

1. To consider matters appertaining to the general welfare of the University and report upon the same to the University Senate.
2. To communicate to the Regents through the President the action of the Senate.
3. To act for the Senate during vacation periods.
4. To adopt rules and regulations for the transaction of its business and to elect a secretary from its members, who is empow-

ered to call meetings at the direction of the President, at the request of two Deans, or three members of the Council, or upon the written request of five members of the University Senate.

5. To call upon members of the University Senate for such service, information, and assistance as may be desirable.

## THE LIBRARIES

The Libraries of the University are the General Library, the William L. Clements Library of American History, the Engineering Library, the Medical Library, the Law Library, the Dental Library, the Natural Science Library, the Chemical Library, the East Engineering Library (Chemical Engineering), and the Physics Library. They contained in the aggregate, June 30, 1923, 545,675 volumes. Two thousand eight hundred eighty-three periodicals are regularly received.

THE GENERAL LIBRARY contains 367,527 volumes and over 5,000 maps. It includes the following special collections: Parsons Library (political economy), 6,076 volumes; McMillan Shakespeare Library, 6,525 volumes; Goethe Library, 1,131 volumes. The Hagerman Collection, the Murphy Collection, and the Dorsch Library, formerly treated as special collections, have, with the approval of the donors, been merged in the general collection.

Within the last few years the library has been enriched by several large and valuable gifts. Among the more important of these that deserve special mention are the historical books, including the Stevens Facsimiles, presented by Mr. Clarence M. Burton, of Detroit; the Morris Philosophical Library, presented by Mrs. George S. Morris; the Alpheus Felch Historical Library, bequeathed by the late Governor Alpheus Felch; the Walter Library of Romance Literature, bequeathed by the late Professor Edward L. Walter; the Stearns Musical Collection, presented by Messrs. Frederick Stearns and Frederick K. Stearns, of Detroit; the Germanic Library of the late Professor George A. Hench, presented by his mother, Mrs. Rebecca A. Hench; the Geological Library of the late Professor Israel C. Russell, presented by his widow; the E. Cora DePuy collection of original manuscripts of authors; the George Duffield Theological Library, presented by the Tappan Presbyterian Association; and the major portion of the libraries of Alexander Ziwet, Professor of Mathematics, of Richard Hudson, former Professor of History, of Elisha Jones, formerly Professor of Greek, of the late Wooster W. Beman, Professor of Mathematics, and of the late Mr. T S. Jerome, of Capri, Italy.

In February, 1920, the Hon. William L. Clements, B.S., 1882, Regent of the University, announced his prospective gift to the University of his valuable library of books and original manuscripts,



especially rich in colonial history, together with a suitable building to house the collection. The building was completed and dedicated in June, 1923. By this addition the University of Michigan has acquired an equipment unsurpassed for the study of early American history. The library contains a very remarkable number of the printed sources for the discovery and colonization periods. It is perhaps strongest in the literature of the American Revolution. The books are distinguished by their unusually fine condition and by their rarity. In addition the collections of manuscripts and newspapers are most valuable. The Clements Library totals about 20,000 volumes.

In January, 1923, the University purchased the library of the late Henry Vignaud, of Paris, amounting to some 17,000 volumes, 30,000 pamphlets, and 3,000 maps. The Vignaud Library supplements the Clements Library by large additions in the fields of cartography and geography, of American history, and of philosophy and ethnography.

The University library is one of the depositories for the printed catalogue cards issued by the Library of Congress; it has acquired those printed by the John Crerar Library, of Chicago; it subscribes, also, to the card publications of the American Library Association, Harvard University, the University of Chicago, the Prussian State Library, Berlin, and various other libraries. The bulk of the University's book possessions are now recorded in a public catalogue based largely on these various series of printed cards.

A large new library building was opened in January, 1920. This building has seats in its various reading rooms for about one thousand readers, and can house over a million volumes. Special facilities are afforded for advanced students in the immediate vicinity of the books, and ample provision is made for the quick service of books required to be read by undergraduates. There are also special reading rooms for current periodicals and for medical periodicals and books. The Bindery and Printing Plant are in the basement.

Books may be drawn by all officers and students of the University, and by others having special permission. The library is open for consultation fourteen hours daily, except during the vacation after the close of the summer session, when it is open ten hours daily. During the regular academic year the library is open on Sundays, for reference use, from 2 to 9 P. M. On important legal holidays the library is closed.

The income of the FORD-MESSER BEQUEST of \$20,000, of the COYL BEQUEST of \$10,000, and of the OCTAVIA WILLIAM BATES BEQUEST of over \$17,000, is used for the increase of the General Library.

THE NATURAL SCIENCE LIBRARY, containing 19,041 volumes, is housed in a specially designed room in the Natural Science building. It is in charge of an assistant detailed from the General Library. It covers the modern books and periodicals in Psychology, Mineralogy, Zoology, Botany, and Forestry. Two hundred forty-three periodicals are received.

THE CHEMICAL LIBRARY, containing 11,757 volumes, occupies a special room in the Chemistry and Pharmacy building and is in charge of an assistant detailed from the General Library. One hundred fifty-one periodicals are currently received.

THE ENGINEERING LIBRARY, containing 19,174 volumes, occupies a special room in the Engineering building and is in charge of an assistant detailed from the General Library. The Architectural Library, containing 2,659 volumes, is housed in the Engineering Library. In addition, more than four thousand books on Engineering and Architecture are shelved with the collections of the General Library. Two hundred seven engineering and architectural periodicals are received.

THE MEDICAL LIBRARIES, containing 41,114 volumes and 500 pamphlets, are shelved with the General Library, and are consulted under its regulations. Four hundred seventy-nine periodicals are regularly received.

THE LAW LIBRARY, containing 60,265 volumes, occupies the large room on the second floor of the Law building. Seventy periodicals are taken

THE LIBRARY OF THE COLLEGE OF DENTAL SURGERY\* is shelved in a room in the Dental building. It contains numerous sets of valuable periodicals and the most important treatises on the theory and practice of dentistry. The whole number of volumes is 3,837. The library has recently been enriched by the private collection of the late Dr. D. W. Miller, consisting of about three hundred volumes. Twenty-five dental periodicals are taken.

THE DAVIS LIBRARY OF HIGHWAY ENGINEERING AND HIGHWAY TRANSPORT, located in the East Engineering Building, is a very complete collection of books and pamphlets on highway engineering and highway transport, together with all the important technical journals. It also contains complete files of reports and specifications, and is equipped with eleven comprehensive indexes.

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## THE ASTRONOMICAL OBSERVATORY

The University Observatory was founded in 1852, through the liberality of citizens of Detroit, and on this account it was named Detroit Observatory. It is situated on the northeastern border of the city of Ann Arbor, about half a mile from the University, on a site overlooking the valley of the Huron River. The Observatory grounds now contain thirty acres.

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\* Named the Taft Library in honor of the late Professor Jonathan Taft, by action of the Board of Regents in July, 1904.

Originally the principal instruments of the Observatory were a refracting telescope of  $12\frac{1}{4}$  inches aperture, constructed by Henry Fitz, of New York; a meridian circle of six inches aperture by Pistor & Martins, of Berlin, the gift of Henry N. Walker, of Detroit; a sidereal clock by Tiede; a chronograph by Bond; and a four-inch comet-seeker.

About 1880, to increase the facilities for instruction, a six-inch refracting telescope, equatorially mounted, with objective by Alvan Clark & Sons, and a three-inch transit instrument, with zenith telescope attachment, were obtained, both made by Fauth & Company, of Washington. Since then to the same end other instruments have been obtained, notably the following: a mean time clock by Howard, chronometers by Bond, and by Negus, chronograph by Saegmuller, altazimuth instrument by Wurdemann, theodolites by Brandis, sextants, transit, computing machines, etc. The  $12\frac{1}{4}$ -inch refractor was reconstructed by the Observatory Shop in 1907 and a new filar micrometer fitted to it, made by the Warner & Swasey Company, of Cleveland. A new driving clock has been made for the six-inch refractor and a camera has been attached to this instrument for making astronomical photographs. This camera has a Tessar lens of 4.5 inches aperture. A new comet-seeker of 4.5 inches aperture has also been constructed. A portable telescope of 4.6 inches aperture has been given to the University by Justice J. E. Howell, of Newark, N. J. A 10-inch visual objective by McDowell, the gift of Mr. R. P. Lamont, has been provided with a uranium tube and adopted to the 6-inch Clark mounting mentioned above.

Facilities for modern astrophysical research have been provided by installing a large reflecting telescope, of  $37\frac{1}{2}$  inches aperture. This instrument was designed at the Observatory and built by the Observatory Shop. The optical parts were made by the John A. Brashear Company, of Allegheny. It is equatorially mounted and is used as a Cassegrain reflector. Since its completion, in 1911, it has been used by officers of the Observatory and by graduate students, almost exclusively for stellar spectrographic research. It is supplied with a single-prism spectrograph of efficient modern construction, designed especially for radial velocity determinations. A two-prism spectrograph has been designed for stellar radial velocity determinations and is being constructed for use on this telescope. The Observatory has five engines designed particularly for the measurement of spectrograms; also a large comparator, which may be used for this purpose, and likewise for the measurement of rectangular coordinates of stellar photographs; a Hartmann microphotometer by Toepfer, having attachments enabling it to be used as a measuring engine, and a Hartmann spectrocomparator.

A refracting telescope of twenty-seven inches aperture, the gift of Mr. R. P. Lamont, of Chicago, has been designed at the Observatory. This instrument is in an advanced stage of construction. After much delay the objective is now complete.

A set of seismographs for the registration of vibrations due to earthquakes has been continuously in operation since 1909. This set includes two Bosch-Omori horizontal pendulums, each with a steady mass of 220 pounds; a Weichert seismograph, also with a steady mass of 220 pounds, and registering two horizontal components; and a Weichert vertical seismograph.

A shop supplied with excellent machine and hand tools is maintained at the Observatory. It has been an important factor in developing the resources of the Observatory, by the construction of new instruments and the modification of old ones, to meet the requirements of instruction and research.

The larger instruments are intended for research, and when not otherwise employed will be available to that end to such students as have the technical ability to use them to advantage.

For many years the Observatory has been receiving the principal astronomical publications, and its technical library is reasonably complete. It contains nearly all the printed star catalogues, most of the modern publications of observatories and astronomical societies, and nearly complete files of the astronomical periodicals.

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## THE MUSEUMS

The University Museums contain collections in zoology, anthropology, geology, mineralogy, botany, materia medica, chemistry, anatomy, the industrial arts, and the fine arts. These are deposited in the various buildings devoted to the subjects they illustrate, except the zoological and anthropological collections, which are housed in a separate building—the Museum of Zoology. All of these are accessible both to students and to visitors. The University affords a secure depository for objects of value, and it is hoped that frequent gifts will be made to its several collections.

### THE MUSEUM OF ZOOLOGY

The collections in the Museum of Zoölogy may be described as follows:

I. THE ZOOLOGICAL COLLECTIONS.—These are large and valuable. They include a series of animals from Western United States made by Lieutenant Trowbridge, a large number of specimens from South America and the Philippines collected by Dr. Joseph B. Steere, a considerable amount of material obtained by the Museum expeditions to various parts of the United States, South America, and Central America, and the extensive collections of the Michigan Geological and Biological Survey. A special effort is made to accumulate zoological specimens from all parts of the State in sufficient quantity to permit of detailed scientific study, and to obtain the foreign forms needed in comparative work. All of the collections are available for

study, the specimens being catalogued and systematically arranged, and the mammals, birds, reptiles, amphibians, and insects have also been systematically catalogued. As far as circumstances will permit, capable persons are given every opportunity to study the collections.

*The Mammal Collection* contains a valuable series of skins and osteological preparations in addition to the specimens on exhibition. There are about 1,000 specimens in this department, most of which are from Michigan, but foreign types are being acquired as rapidly as possible.

*The Bird Collection* includes about 8,000 skins and 1,600 mounted specimens. There are large series from Michigan, representing the variations with age and sex in many species, but there are also many specimens from various parts of the new and old worlds. The collection of bird stomachs numbers 2,500 entries. A series of groups illustrating biological facts has been installed. In these groups the natural surroundings are reproduced in detail. There are forty-three types, eight paratypes, and two cotypes, representing forty-four species in the collection.

*The Reptile and Amphibian Collection* contains a large series of Michigan specimens, the variety and number of specimens making it the most valuable collection of its kind in the State. In addition to the Michigan material there are several thousand specimens from various parts of North, Middle, and South America and a rapidly growing series of Old World forms. There are many types in the collection.

*The Fish Collection* is composed almost entirely of Michigan forms. There are about 12,000 specimens, most of which were collected by the various surveys and which are thus accompanied by ecological data.

*The Mollusk Collection* includes shells of about 6,000 species, representing most of the genera of the land, fresh-water, and marine shells. The specimens have for the most part been identified by experts which makes the collection of special value to the student.

*The Insect Collection* at present contains several thousand determined species, representing about 150 families, which are systematically arranged and catalogued. The collection is particularly strong in Michigan material, and much of this has been collected by the several Museum and State surveys and is accompanied by ecological data. The material is from nearly every state in the Union, and Europe, Africa, South and Middle America, and the South Pacific Islands. There is a particularly good series, principally economic forms, from the Philippines (the Ledyard Collection). There are many types in the collection.

*Miscellaneous Invertebrates.* — The collection of invertebrates other than insects and mollusks consist largely of miscellaneous mate-

rial for illustrative purposes. The only extensive series is of Crustacea, which comprises a determined collection of American forms. There are types and paratypes of several species of crustaceans.

II. THE ANTHROPOLOGICAL COLLECTIONS.—Among the most notable features of this department of the Museum are:—

a. *The Oriental Section*, including the entire Chinese Collection, mentioned below, weapons, clothing, farm implements, carpenters' tools, porcelains, and idols, from China, Formosa, and the Philippines, secured by the Beal-Steere Expedition, and an interesting series of South Sea Island weapons, presented by the Smithsonian Institution.

In 1885 the Chinese government presented to the University the exhibit which it sent to the New Orleans Exposition. A part of the collection, numbering several thousand specimens, is on exhibition in the museum building. It illustrates with special fullness the varieties of Chinese cotton, the Chinese processes of manufacturing cotton and the finished products of cotton and silk. There are many articles showing the skill of the Chinese in working wood, ivory, and porcelain, in embroidery, and in painting on glass and on silk.

b. *The Collection of Peruvian and New Mexican Ceramics*, including an exceptionally fine series of ancient Peruvian burial pottery and modern basins secured by the Beal-Steere Expedition, and an extensive series of New Mexican pottery received from the Smithsonian Institution.

c. *The Modern Indian Section*, including wearing apparel, implements of war and the chase, and household utensils, of the South American, North American, and the Alaskan Indians, and a fine example of the Alaskan totemic column.

d. *The Stone Age Section*, including the local collection of the late David De Pue, a series of Danish implements, and a series of casts of rare implements prepared by the Smithsonian Institution.

### SPECIAL COLLECTIONS AND MUSEUMS

MINERALOGICAL AND PETROGRAPHICAL COLLECTIONS.—The exhibition collections of the department of Mineralogy and Petrography are displayed in Room M 222 of the Natural Science Building, which is open to the public daily, from 8 A. M. to 5 P. M., whenever the University is in session. The large systematic mineral collection is exhibited in five central cases, beginning at the east end of the room. The sixth central case contains an excellent collection of gems and gem minerals. The wall cases in the northeast corner contain collections illustrating the common physical properties of minerals, American rocks, important marbles and granites suitable for building and decorative purposes, and a collection of Michigan rocks and minerals are to be found in the smaller wall cases on the south side of the room. The deep wall cases contain large and unusual speci-

mens. In the cases between the windows have been placed collections of crystals and glass crystal models. Instructive photographs illustrating diamond mining in South Africa are also shown in this room.

**GEOLOGICAL AND PALEONTOLOGICAL COLLECTIONS.**—The Paleontological collections are, in large part, in the Geological Museum in the Natural Science building. The invertebrate collections consist of several thousand carefully identified specimens illustrating the extinct forms of life. The specimens are arranged to illustrate the zoological and botanical characters of extinct life forms, the stratigraphical sequence of fossils, the relation between living and extinct forms, and certain definite lines of evolution. Models of extinct forms accompany the fossils to show the appearance of the animals in life. The paleontology laboratory contains numerous collections from different localities, affording opportunity for the student to become acquainted with the fossils of definite geological horizons. Among the more important units in the collections are the collections of the Michigan Geological Survey, the Rominger collection of corals, the White collection, and the Springer collection of crinoids.

The vertebrate fossils are in part located with the invertebrates in the Geological Museum, but some of the larger mounted specimens are placed in the Museum building. These specimens, with appropriate models and photographs, serve to illustrate the development of vertebrate life.

The Geological collections illustrating the structure and character of rocks are installed in cases in the corridor of the second floor of the Natural Science building.

The collections of **PHARMACOGNOSY** and **INDUSTRIAL CHEMISTRY** occupy a floor space of 2,500 square feet in the Chemistry and Pharmacy building, and are briefly described as follows:

**THE PHARMACOGNOSY COLLECTION** comprises several thousand mounted and labeled specimens of products from all parts of the world, such as are used for medicinal food, and industrial purposes. The articles are of vegetable and of animal origin and are arranged in the present system of scientific classification. Water-color plates and photographs, showing the form and habit of the plant, accompany the exhibits. Series of chemical constituents, isolated by students, and mounted in part in the relative proportions in which they exist in the plant, make up a phytochemical exhibit. There is a set of drawings, photo-micrographs, and wall-charts of the historical structure of drugs, foods, and condiments, for aid in the study of adulteration.

The cultivation and preparation for the market and the commerce of these articles among the peoples of the earth are illustrated by collections of authentic photographs, many of which have been expressly procured for the study of commerce with distant parts of the world.

**CHEMISTRY INDUSTRY.**—This collection contains exhibits illustrating the raw materials, intermediate products, and final products of those manufacturing industries whose operations are chemical in nature. Among the industries represented are those which produce salts of various types, acids, alkalies, and bleaching powder; pottery glass, and Portland cement; electric furnace products; copper, steel, and other metals and alloys; the by-products from coal distillation, with explosives and dyes as finished products; petroleum; fats and oils, soap, and glycerine; paint and varnish; leather and glue; rubber; sugar, starch, and glucose; textiles and paper.

**THE MUSEUM OF ANATOMY AND MATERIA MEDICA** and the **DENTAL MUSEUM** are housed in the buildings of the Medical School and the Dental College, respectively, and are described in the chapters devoted to them.

### MUSEUM OF FINE ARTS AND HISTORY

The works of art belonging to the University are installed in the Alumni Memorial Hall. The collections, begun in 1855, include valuable original works, especially American, of the nineteenth century and the contemporary period—notable among the later paintings being portraits by William M. Chase, Gari Melchers, and others and among the works of sculpture representative examples by Daniel C. French, Karl T. F. Bitter, A. A. Weinmann, and others. The University collections of epigraphy and numismatics, supplemented by an extensive working collection of casts and reproductions, are well known in classical circles. Among the special collections are the following:

*The Lewis Collection*, bequeathed to the University by Henry C. Lewis, of Coldwater. Among its four hundred and fifty canvases are original works and copies of the Italian Schools of the sixteenth and seventeenth centuries by such well known men as Raphael, Correggio, Sebastiano del Piombo; the French, German, and Spanish schools of the eighteenth century; nineteenth century European masters, such as Benjamin Constant, Schreyer, Van Marcke, Diaz, Bouguereau, Jerome, and early American painters such as Rembrandt Peale, Charles W. Peale, Vanderlyn, and Eastman Johnson.

*The Wetmore Collection*, presented to the University by Jean A. Wetmore (B.S. 1881, M.S. 1882), including representative canvases by nineteenth century and contemporary European and American artists, such as Crome, Rosa Bonheur, Thomas Cole, Daniel Huntington, J. F. Kinsett, and T. B. Griffin.

*The Rogers Collection*, given to the University by the sculptor, Randolph Rogers, embraces his entire collection of casts and models of his own works, more than a hundred in number. It forms the chief material for the study of this important American artist.



*The De Criscio Collection of Inscriptions*, acquired through the generosity of Henry P. Glover, of Ypsilanti, comprises about two hundred fifty original inscriptions in Greek and in Latin, mostly from the neighborhood of Pozzuoli.

*The Todd Collection of Egyptian Antiquities* were presented by the Hon. A. M. Todd, of Kalamazoo.

The collections of coins and medals include the RICHARDS collection of Greek and Roman coins, the HORACE WHITE collection of European medals, and the BAGLEY, FRITCHEY, and JEWETT collections of American medals and coins.

### MUSEUM OF MUSICAL INSTRUMENTS

The Stearns Collection of Musical Instruments, donated by the late Frederick Stearns, A.M., of Detroit, is considered by authoritative critics, both in this country and abroad, one of the most significant of modern collections. It contains about 1,500 examples of every type of musical instrument, and its value for purposes of independent study and original research is heightened by the fact that the scientific aspects of *Instrumentenkunde* have been emphasized rather than mere beauty of form or historic interest. Still these features have not been ignored, as will be observed by a study of the instruments, notably those from India and Japan, while many of the instruments are rich in historical significance.

The collection has recently been arranged in an appropriate room in Hill Auditorium. A comprehensive illustrated catalogue was published in 1919, and an enlarged second edition in 1921. Although not formally included in this collection, the Frieze Memorial (Columbian) Organ may be considered as belonging to it, as it is a fine example of organ building in this country at the time of its erection. It was rebuilt and enlarged at the time of its transfer from University Hall to its present location.

The educational aspects of the collection are emphasized by the fact that Mr. Stearns presented to the General Library a very inclusive collection of books bearing on the subject. This feature will be emphasized still more in the near future, when a complete card catalogue of all references to instruments contained in the General Library will be at the command of students.

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### THE LABORATORIES

In the several laboratories of the University, opportunities are provided for practical instruction in physics, chemistry, mineralogy, geology, zoölogy, psychology, botany, forestry, actuarial work, engineering, histology, physiology, hygiene, electrotherapeutics, pathology, anatomy, and dentistry.

The laboratories designed primarily for students of engineering, of medicine, and of dentistry are described in later chapters.

### PHYSICAL LABORATORY

The first floor of the Physics building is devoted to experimental work in electricity and magnetism, and to research. It contains about 8,000 square feet and is divided into fourteen rooms, including a battery room, a large instrument shop, another large room for electrical measurements, and a smaller one for photometry. Two rooms are used for instruction in direct and alternating current machinery and radio communication, and are equipped with various types of machines and apparatus in common use, with the necessary instruments for testing.

The battery room contains two storage batteries; one consisting of one hundred and twenty cells, of ten amperes capacity, and one, consisting of eighteen cells, of twenty-five amperes capacity. A switch-board, wired to all parts of the building, serves for the distribution of current from the batteries as well as the 220 and 110 volt direct current from the University power house and the 220 and 110 volt alternating current from city lines. Compressed air is also available in the rooms.

On the second floor are two lecture rooms, one seating one hundred twenty and the other four hundred students. An apparatus room is adjacent to each lecture room. This floor contains in addition a large laboratory for beginners, the library, offices, and research rooms.

The third floor contains eleven rooms, the two largest of which are used as laboratories for beginners. Two rooms are used as class rooms and the rest for the advanced work in heat and electrochemistry.

The laboratory is well supplied with apparatus from the best European and American makers. The annual budget allows the addition each year of apparatus needed for the work of graduate students and for illustration of recent advances in physics.

### NEW PHYSICS BUILDING

Advanced work and research in physics have been removed to the first unit of the new physics building just completed, the second unit of which, when built, will contain the large lecture room, laboratories, class, and consultation rooms for the elementary classes. The new laboratory has two wings 144 feet and 132 feet in length and each 60 feet wide, of reinforced concrete construction with specially deadened floors. There are four stories, a basement, and a first and second sub-basement, all seven floors connected by elevators.

Laboratories are provided for mechanics, heat and high temperature measurement, sound, light and applied optics, radio activity, electrical measurement, vacuum tubes, and wireless, all supplied with adjacent apparatus, research, and consultation rooms. Sound has a two-story structure extending through the basement and first

sub-basement entirely disconnected from the walls of the surrounding building. X-ray research has ample quarters in the basement and first sub-basement. The high potential generators are housed in a two-story room which permits ready distribution of power to a number of adjacent research rooms. Spectroscopy both in the photographic and infra-red regions has a series of laboratories. In addition, there are single and multiple unit research rooms available for any purpose. All rooms are provided with numerous storage battery connections and both the 110 v. A. C. and 220 v. D. C., as well as water, gas and compressed air. In certain rooms brine circuits from a nearby refrigerating plant permit maintenance of low temperatures and the removal of moisture by freezing. Three storage batteries contain altogether 640 cells, and switchboards make possible a universal distribution of power. In addition, there are two instrument shops, a wood shop, a glass blowing room, and general apparatus rooms. The building also contains necessary offices, four rooms for lectures and classes in advanced courses, a library, and a faculty room.

### **CHEMICAL LABORATORY**

The Chemistry and Pharmacy building is a modern fire-proof four-story building erected in 1909. It is provided with an efficient ventilation system and its rooms are all well lighted. The total floor area of 104,500 square feet includes 127 rooms, comprising adequate class and lecture rooms, a capacious library and reading room, centrally located dispensing and store rooms with facilities for dispensing on the main floors, and ample laboratory accommodations. The dispensing department is united to a University Chemical Storehouse, located in the northwest corner of the laboratory, which supplies chemicals and chemical apparatus for the entire University. The supply of routine materials and apparatus is extensive, as is also the special equipment for research. Facilities for investigations in the various branches of chemistry and pharmacy are provided in numerous well-equipped smaller laboratories interspersed amidst the offices and private laboratories of the teaching staff. The library is in charge of a University librarian, and is a part of the regular University Library system. It houses the chemical library and is especially rich in its files of journals, there being full sets of all the important chemical journals, many of which are comparatively rare. All classes in chemistry and pharmacy, excepting physiological chemistry in the Medical Schools, are taught in this building.

### **NATURAL SCIENCE BUILDING**

A four-story fire-proof building was erected in 1915 for the use of the departments of botany, forestry, geology, mineralogy, psychology, and zoology.

The main part of the building is a reinforced concrete skeleton frame with reinforced concrete and terra cotta tile floor construction.

The outside walls are finished with cut stone and brick and the window sash is of steel.

On account of its location between the diagonal walk on the one side and North University Avenue on the other, the building is of irregular shape. The approximate measurements are for the north side 243 feet, for the east side 263 feet, for the west side 150 feet; and the south side, with a series of breaks, is made to conform in general with the diagonal walk and trees. A greenhouse is located on the south side at the east corner. The building encloses a court 120 feet across. A corridor about 700 feet in length runs through the center of each floor. There is a clear span of approximately 23 feet between the corridor and the exterior walls on both the campus and court sides. The form of construction gives unusually large windows, and these combined with the light court in the center allow excellent illumination of all rooms. The corridor floors are finished with terrazzo, the floors of the rooms with cement. The building contains 270 rooms. The basement under the first floor contains an extensive tunnel in which is centered the plumbing, steam fitting, and electric work; rooms for the air supply fans; machine rooms for the two freight elevators; and caves for the use of the various departments. Each department is given a section from roof to basement. At the southwest corner on the diagonal walk is located a lecture room seating 500, with a preparation room attached. The lecture table is built in sections; each section runs on rollers and can be taken to any part of the building for the preparation of material. These sections fasten to stanchions set in the cement floor; at the stanchions all sorts of plumbing and electric supplies are available, including low-voltage storage battery current. An isolated and well lighted library for all departments in the building is located above the lecture room. This portion of the building is carried on structural steel.

The building is equipped with a unit system of waste pipes, water, gas, and compressed air, which will enable any change in plumbing to be made at small cost at any time in the future. All piping is exposed. There is a vacuum cleaning system throughout. Alternating current is used for power and for lighting and is available everywhere. There is a unit system of distribution of direct current of 220 volts and special outlets for direct current at 75 volts are well distributed. Cistern water and filtered water are available at certain places in the building. The building is well ventilated with a complete air supply and exhaust system. A special separate exhaust is provided for the toilets and certain other rooms. Pneumatic switches and diaphragm motors are used to control ventilation. The temperature is controlled by thermostats.

### **PSYCHOLOGICAL LABORATORY**

The psychological laboratory occupies a portion of the Natural Science building. The available space is cut into 40 rooms. On the

first floor are located a class room, a shop, a research room with light-tight shutters and containing a concrete pier set in a bed of sand, a small storage room, rooms for keeping animals, and a room especially designed for work with the maze and for other work in comparative psychology. The second floor has offices and private laboratories for the staff, a phonetics room, dark rooms, and rooms with light-tight shutters and light walls for work in comparative psychology. Nine rooms, including a dark room, olfactory room with exhaust hood, chronometric rooms, etc., for use by the general experimental class are on the third floor. On the fourth floor are a sound-proof room, other connected rooms for acoustics, a series of research rooms, and a system of dark rooms in which a clear space over sixty feet in darkness may be obtained. These dark rooms may be used in various combinations and have an optics room with neutral gray walls in connection. The optics room and dark rooms have north windows as well as skylights, all of which are equipped with light-tight shutters.

All rooms are wired so that they can be interconnected through a central switch-board system and also supplied with low-voltage currents from dynamotors and storage batteries. Tubes in the walls and in the floor slab make possible other connections between several rooms. All parts of the laboratory are well supplied with alternating and direct current, waste, gas, and compressed air.

Lectures to large classes are given in the main lecture room of the building. The laboratory is located adjacent to the library in which practically all psychological journals are on file.

Facilities for the study of those sides of animal behavior with which this laboratory is not well supplied, are provided in neighboring rooms belonging to the zoological laboratory.

The equipment includes a complete set of apparatus for the work of elementary experimental classes, models of the brain and sense organs, Hipp chronoscopes, kymographs, a large pendulum and gravity chronograph to regulate the registration apparatus, Meumann's time sense apparatus, a Marbe mixer, a Musil rotator, a practically complete set of Herings instruments for color determinations, apparatus for testing the accuracy of indirect vision, a Müller cylinder episkotiser, a Dodge tachistoscope, Dodge photographic apparatus, a Marbe sound recording apparatus, a complete set of Verdin's instruments for investigating speech, forks by Koenig and Edelmann, a modified Wien apparatus by Kohl for determination of sound intensities, Stern tonvariators, a modified Wirth memory instrument, and a considerable number of instruments devised in this laboratory and made in the University instrument shops. The equipment for work in sound and phonetics, for comparative psychology, for studying the learning processes, and for investigating the relations between physiological processes and mental states is particularly large; but every field is represented.

Such apparatus as is needed for advanced work or research will be procured as required. Every facility and encouragement is offered to students of sufficient preliminary training to undertake investigation on special problems.

### **MINERALOGICAL LABORATORY**

The mineralogical laboratory comprises 36 rooms located in the northeast portion of the Natural Science building. A suite of five rooms, designed especially for research, is located on the first floor. Three of these rooms have light-tight shutters, and are provided with piers equipped with water, gas, compressed air, and alternating and direct currents. The packing, store, and grinding rooms are also on this floor. The mineral collections, lecture rooms, model and apparatus rooms, and an office are on the second floor. The laboratories for the courses in general mineralogy, blowpipe methods, and mineral and rock analyses, several offices, and a stock room are on the third floor. On the fourth floor are the laboratories for lithology, petrography, crystal measurements, and physical crystallography, a small lecture room, and offices for the staff and advanced students. A crystallization room is located in the sub-basement.

The laboratory is well equipped with crystal models, natural crystals, and lecture and working collections of minerals, rocks, and thin sections. There is an excellent equipment of goniometers, polarization microscopes, and other crystallographic-optical instruments necessary for the thorough study of minerals. These instruments are all of the most modern and approved types. The blowpipe and chemical laboratories possess every facility for the qualitative and quantitative determination of minerals and rocks. The equipment of the laboratory is such that special attention can be given to graduate work, and special investigations in mineralogy and petrography.

### **GEOLOGICAL AND GEOGRAPHICAL LABORATORY**

The departments of Geology and Geography are located in the Natural Science building. Special laboratories have been provided for the work in general geology, historical geology, and paleontology, physiography, and economic and soil geology. In addition there have been provided special research laboratories, a map and folio room, the Russell seminary room, photographic dark rooms, and a common departmental library for works treating especially of the natural sciences. The geological collections are arranged in a museum room immediately adjoining the paleontological laboratory. Modern lecture and class rooms and a large auditorium for the common use of the several natural science departments supply all necessary facilities for lecture and class instruction. Meteorological instruments are conveniently located in the roof of the building, but the instruments for the study of earthquakes are installed in the observatory.

The collections of economic rocks and minerals which are made use of in connection with the courses in Economic Geology, have been considerably augmented during the past few years through purchase and exchange, so that the occurrence and the associations of the various ores and minerals of economic importance can be well illustrated.

### **BOTANICAL LABORATORY**

The botanical laboratory occupies the southern portion of the Natural Science building. The installation includes a variety of laboratories, private research rooms, and apparatus composing an equipment competent to deal with many of the problems of modern biology. Besides the usual provision for morphological work, there are provided means of working with vacuum and pressure; refrigeration rooms, in which constant temperatures from zero degrees upward may be employed; a greenhouse of 1,400 square feet attached to the main building and divided into several rooms for securing differences of moisture, temperature, are illumination; a larger greenhouse with laboratory and garden, especially for research, located a mile from the laboratory; photographic rooms; equipment for chemical biology and for mycology and plant pathology.

The department also has a cryptogamic herbarium, a phanerogamic herbarium, and a museum. The University owns various tracts of land within and on the borders of the city of Ann Arbor which contain meadows, a bog, a small lake, ponds, and a woodlot. These are all used by the botanical department for field work and ecology.

### **BOTANICAL GARDEN**

In 1913 the University acquired 20 acres of land for a Botanical Garden, on the southwest side of Packard Street just beyond the city limits. This is a tract of level, fertile land with excellent moisture conditions, and is much more accessible for students during the winter months than is the old garden in the Arboretum. The interurban cars pass by the tract and the city cars run within 40 rods.

The Botanical Garden offers excellent opportunities for all phases of botanical instruction and research concerned with growing plants. Its physical equipment includes at present four greenhouses, with a combined area of 7,850 square feet, ample work rooms, a boiler house with modern equipment, and a two-story brick laboratory. An important feature of the greenhouses is the provision of five separate rooms for individual research, each with independent ventilation and automatic heat control. Facilities are provided for the propagation and cultivation of plants for experimental purposes. During the past season, six acres of experimental ground were under cultivation. The Garden offers to a few qualified students unexcelled opportunity for investigation in genetics and practical plant breeding. Recent work has included general research in the genetics of *Oenothera*, and special studies on peas, beans, sugar beets, tomatoes, and other economic plants.

A collection of growing plants for teaching and exhibition purposes is being developed, and contains about seven hundred species, including some of the more important economic and ornamental species of the tropics and a small but representative collection of hardy plants. The Botanical Garden provides for the decoration of University buildings and for annual floral displays.

### **NICHOLS ARBORETUM**

Through the gifts of friends and an agreement with the City of Ann Arbor, the University has come into possession of a parcel of land containing about ninety acres. The city coöperates with the University in developing this tract as a park and arboretum.

The land is within the eastern boundary of the City of Ann Arbor and fifteen minutes' walk from the campus. It has a frontage of more than one-half mile on the Huron River and includes the well-known School Girls' Glen. The topography is exceedingly varied, the highest point being 195 feet above the river. The soils vary from heavy clay to light sands.

About fifteen acres of hillside and ravine are already covered with native trees, shrubs, and herbaceous plants.

A tentative plan worked out by Mr. O. C. Simonds, landscape gardener of Chicago, and further developed by Professor Tealdi, of the department of Landscape Design at the University, contemplates three distinct features: The beauty of the tract as a public park; a collection of native plants, shrubs, trees, particularly those of the Michigan flora; and collections of native shrubs, trees, and perennials employed in landscape designs to be represented here for inspection and study by the students and the general public.

### **ZOOLOGICAL LABORATORY**

The zoölogical laboratory, with a floor space of about 26,000 square feet, occupies the northwest quarter of the Natural Science building and contains 70 rooms. On the first floor are the laboratories of general physiology and ecology, a students' dark room, shop, a small chemical laboratory, refrigerating room, unpacking room, preparation room, and store rooms. The second floor is used chiefly for laboratories for classes in beginning zoölogy, offices, and seminary rooms, the third for laboratories, lecture room, museum, and study room for advanced classes, while the fourth floor is devoted largely to private laboratories and offices for the staff and graduate students. There is an aquarium room on each floor provided with city water, filtered water, cistern water, and compressed air. That on the first floor contains, in addition to many small aquaria, a small fish hatchery and concrete floor tanks for keeping aquaria animals. In the sub-basement is a cave fitted with aquaria. On the upper floor are two small vivaria. These are rooms especially fitted for experimental work requiring temperature control and for light reaction work. A suite of five rooms on the upper floor is devoted to photography.



Here are a well-lighted photographic gallery, a dark room, and special rooms for photomicrography, enlarging and reducing on both plates and paper, and photographic storage.

There is a good equipment of microscopes, of microtomes, of Zeiss's photographic apparatus, and of other accessories. For illustrative purposes, there is a collection of alcoholic specimens (many of them from the Naples Zoölogical Station), and a full collection of Lueckart and Nitsche's and other wall charts. For field work there are provided collecting apparatus and field glasses for the individual use of students and photographic cameras, a boat, and larger pieces of collecting apparatus for collective use.

### **FOREST LABORATORY**

In the forest laboratory students receive instruction in forest botany, timber physics, structure of woods and certain features of wood technology, as well as in forest measurements and the methods of study of the growth of timber. A good collection of wood specimens, sections of trees, and herbarium material is provided and will be increased as rapidly as possible. There is an ample supply of microscopes, compasses, calipers, height measure, and other apparatus for use in the laboratory and in the field.

### **FOREST NURSERY**

A special nursery for the propagation of forest trees within ten minutes' walk of the campus has been developed. This nursery is equipped to demonstrate certain phases of silvicultural work and the methods of commercial nursery practice from the preparation of the seed beds to the packing for shipment of the mature seedling. Quarters are provided on the grounds for the proper accommodation of students working in the nursery and for the detailed study of nursery work and investigation.

### **SAGINAW FOREST FARM**

Special facilities for the study of forestry are supplied by the Saginaw Forest, a tract of land about one mile west of the city of Ann Arbor, presented to the University by the Honorable Arthur Hill, of Saginaw. The farm, comprising eighty acres, is a typical example of the low hilly land of the drift district, and contains as great a variety of topographical and soil conditions as could be expected in an area of this extent. Its soils vary from heavy clay to sandy gravel. In addition to its other good features, there is a lake of clear water, from ten to fifty feet deep and covering an area of twelve acres.

The farm is to serve as an object lesson in forestry. Upon it provision is to be made for (1) an arboretum of all useful forest trees that can grow in Michigan; (2) model plantations of forest trees, and (3) special experiments in forestry, relating to various methods of propagating different kinds of timber, to the raising of particular forest products, and to other practical purposes.

### **THE EBER WHITE WOODS**

The Eber White Woods is a tract of native hardwoods located just outside the city limits of Ann Arbor and therefore within easy walking distance for students of the University. It contains about forty-three acres, varying from level to steep, rolling ground, and has the usual variety of soil, from sandy land to clay and gravel. It is well drained, with a small live brook flowing through one corner. The forest was cut over for local use many years ago, but a part of the old white and red oak timber is still standing. It is planned to manage this woods as a selection forest on a ten-year period of return, and make it serve in this way as an object lesson, practice ground, and experiment plot for the courses in forestry; and at the same time to treat it as a park-forest, preserving, as far as possible, its beauty for the enjoyment of the many visitors.

### **STATISTICAL LABORATORY**

This laboratory is equipped with various instruments to facilitate the computation and tabulation of statistics; among these may be mentioned Hollerith sorting and tabulating units, one twenty-figure Millionaire arithmometer, one sixteen-figure Millionaire arithmometer, and one thirteen-figure Brunsviga arithmometer. Students are instructed in their use in the preparation and tabulation of premiums, reserves, and other schedules required in the practical work of insurance offices and statistical bureaus. The laboratory also contains a working library comprising complete sets of most of the important actuarial journals and text-books on actuarial theory. Reports on vital and other statistics are drawn from the General Library when required.

### **LANTERN SLIDE SHOP**

The lantern slide shop, situated in the basement of the Physiology building, has been extremely enlarged and remodelled. The dark-room is now fully equipped for printing and developing lantern slides, enlargements, and contact prints. Especial attention is given to glossy prints for reproduction. In the copy-room a new artificial lighting system has been installed, which gives a light photographically the same as daylight. It is thus possible to procure a true rendering of halftone under all weather conditions. A "Semper Focal" enlarging and reducing camera permits the making of lantern slides directly from the original negative regardless of its size.

The shop is under contract to give the University work precedence under all circumstances, but as the shop is now arranged, the out-put capacity is so much increased as to insure prompt handling not only of large University orders, but also of a limited amount of outside work.

### **OTHER FACILITIES FOR INSTRUCTION**

For descriptions of the various laboratories, shops, museums, etc., used in connection with the work in the professional schools and colleges, see the chapters on the several schools and colleges.

## THE HOSPITALS

The hospitals of the University have a capacity of 560 beds and furnish facilities for the clinical instruction of students in the Medical School. A new hospital building, now under construction, will provide 600 beds additional.

Further information regarding the hospitals is given in the chapter on the Medical School. The University Hospitals are in charge of the Hospital Director, to whom requests for information should be addressed.

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## MORAL AND RELIGIOUS INFLUENCES

The churches of the city of Ann Arbor are cordially thrown open to the students, whose interests are largely consulted by the pastors in their pulpit instruction and in their plans of work. There are churches of the following communions in the city: Baptist, Congregationalist, the Disciples, English Lutheran, German Lutheran, German Methodist, Methodist Episcopal, Presbyterian, Protestant Episcopal, Roman Catholic, and Unitarian.

The Students' Christian Association, with departments for men and women, is an organization of the campus which devotes itself to moral and religious culture; always for the purpose of assisting the various churches in their work with students. This is done through voluntary Bible and Mission study, religious education, religious meetings, social service and deputation work, personal attention, in coöperation with the churches and student Guilds.

The work for young men centers in Lane Hall, a fine structure two blocks from the campus, completed in 1917. The building is planned strictly for religious and restricted social purposes, leaving to the University gymnasium and the Michigan Union the physical and larger social features. On the basement floor are public and private dining and committee rooms, and the caretaker's apartments. The main floor is devoted, with the exception of a large reading room to administration, with offices for the secretaries and the denominational representatives at Ann Arbor. The second floor has a commodious auditorium, and guest rooms. The men's organization has several thousand members with a general secretary and the student cabinet at the head.

Work for the college women, under the auspices of the Young Women's Christian Association, is carried on in Newberry Hall, on State Street opposite the University campus. The general secretary and assistants conduct the women's activities. The outstanding features are the weekly vesper services, the religious education classes, and the social service work. The organization has over 1,500 active members and 241 honorary members.

## **DIVISION OF HYGIENE, PUBLIC HEALTH, AND PHYSICAL EDUCATION**

The Division of Hygiene, Public Health, and Physical Education is composed of the department of Hygiene and Public Health, of the University Health Service, and of the Students' Physical Welfare group of activities, which include Physical Education for Men, Intramural Athletic and Recreational Activities, and Physical Education for Women.

The department of Hygiene and Public Health offers general courses in hygiene and public health in the College of Literature, Science, and the Arts, the Medical School, the College of Pharmacy, and the School of Education. In the latter school, in conjunction with the Division of Intercollegiate Athletics, a program is given for the training of teachers and supervisors of physical education, school health, and athletics. Advanced and special courses are offered in the Graduate School. All the courses are described in detail in the appropriate chapters.

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### **STUDENTS' PHYSICAL WELFARE**

The following departments in the Division of Hygiene, Public Health, and Physical Education are concerned directly with the health and physical welfare of students:

1. Physical Education for Men.
2. Intramural Athletic and Recreational Activities.
3. Physical Education for Women.
4. University Health Service.

Collectively these departments are referred to as the "Students' Physical Welfare Group". These departments are engaged also in teaching physical education, athletics, and school health. The following statement is applied to the University's interest in and its activities and facilities for maintaining positive health and physical efficiency in all students.

The University is fundamentally interested in the health of its students. It realizes fully that a sound, vigorous, harmoniously developed, and active physique is a most important essential to the success of the student, not only while he is in the University, but later on in his life. Therefore it is the purpose of the University to foster all interests and activities which have for their objective the promotion of health and prevention of disease among students.

*Physical Examinations.* — Each student entering the University is required to take a physical examination before registration is complete. These examinations are conducted during the week prior to the opening of the academic year. Upper classmen are required

to take physical examinations annually. Posture, anthropometrical measurements, and physical efficiency tests are made, or arranged for, at the time of the annual examination. Records are kept of these examinations and are utilized by the various departments making up the Students' Physical Welfare Group.

*Required Course in Hygiene.*—All freshmen in the Colleges of Literature, Science, and the Arts, of Engineering and Architecture, and of Pharmacy, are required to take a course of six lectures and demonstrations on personal hygiene—health promotion and disease prevention. Evidence must be furnished by the student that he has an understanding of the principles discussed before he is accredited with having completed the course. These lectures are given at the beginning of each semester, prior to actual work in the gymnasium. No credit in semester hours is given for the course. Special lectures are arranged for men and women.

*Gymnasiums.*—The University has two gymnasiums, one for men and one for women, costing about \$200,000. The former is called the Waterman Gymnasium; the latter, the Barbour Gymnasium. In the conduct of the gymnasiums the aim is not so much the development by a few gymnastic experts as the provision of wholesome physical exercise for the many. The facilities of the building and instruction, are free to all students, the only charge being a rental of \$2 a year for a locker.

The particular functions and activities of each of the agencies making up the Students' Welfare group are as follows:—

## PHYSICAL EDUCATION FOR MEN

### Waterman Gymnasium

Waterman Gymnasium, named in honor of the late Joshua W. Waterman, of Detroit, who contributed largely to its cost, affords excellent opportunity for all phases of gymnastic and indoor athletic activities. The main floor is a rectangle 246 by 90 feet, with truncated corners, allowing if desired a 75-yard straight-away sprinting track. There is also a dirt pit for jumping and shot putting, covered by a trap door when not in use, as well as equipment of the various kinds of apparatus usually found in the best modern gymnasiums. Several smaller rooms are devoted to administration, fencing, boxing, and other special purposes, while the basement is given up to baths, lockers, handball, and shotput. The main hall is lighted in the daytime through a large skylight sixty-six feet above the floor, and in the evening by electricity. A gallery makes room for an elliptical running track, ten laps to the mile.

Work in the gymnasium, twice a week throughout the year, is required of all freshmen in the College of Literature, Science, and the Arts, and the Colleges of Engineering and Architecture; the credit is not recorded, however, in semester hours. Students are required

to report to the Director of the Gymnasium to make appointments for assignment to sections as soon as registration is completed. Everyone using the gymnasium either for exercise or bathing must procure a locker, and in order to procure the best possible hygienic and sanitary conditions, only one man is allowed to occupy a locker. These rules are strictly enforced. Locker tickets should be purchased from the University Treasurer.

Students are assigned to that work in the gymnasium which the physical examination has revealed they need. Every student examined is measured and furnished with an anthropometric chart, which affords a comparison of his own measurements with those of the average student and reveals for correction any abnormality that may be present. A second measurement is made after the class work is finished, in order to note what changes have taken place.

**A. Required Work:—*M, F, or Tu, Th, at 3:15, 4:15, 5:15.***

The required work in Physical Training is planned to produce uniform development, which is of the greatest importance; special attention is given to arm and chest exercises, since the development of these parts of the body is below normal in a great majority of the men who come to college. In order to be interesting, however, the work is varied, and consists of athletic exercises, as well as gymnastic drills and apparatus work. Credit towards the requirement in physical training is given for outdoor sports in season, such as class football, soccer, ice hockey, and cross country running, provided that those who desire to engage in these sports make proper arrangements with the Director of the Gymnasium. After the close of the season for these sports, students participating in them must report for regular indoor work. An outdoor running track has been constructed adjacent to the gymnasium, in order to encourage outdoor running when weather conditions permit. After the spring recess the work will be continued in the form of outdoor games and sports on Ferry Field.

**B. Elective Work:** Upper classmen are urged to use the gymnasium at hours not scheduled for the required freshman work. Instructors are present for the purpose of teaching upper classmen in all forms of indoor activity.

### **Intramural Athletic and Recreational Activities**

Intramural athletics occupy a very important place in the life of the student body at the University of Michigan. Practically every student in the University can be found taking part in some form of physical exercise. Such a universal participation is accomplished through the work of the Intramural department in promoting a wide variety of sports. Facilities are offered for all of our popular American games; but in addition students from Canada will find the chance to play hockey, and students from foreign lands find a soccer field and ball at their disposal.

More than twenty sports are included in the Intramural curriculum. They are placed by seasons, as follows: *Fall of the year*, football, soccer, speedball, tennis, cross-country, golf, and rifle shooting; *Winter*, basketball, hockey, bowling, indoor track, swimming, boxing, wrestling, volleyball, handball, fencing, and gymnasium competition; *Spring*, baseball, playground ball, track, tennis, golf, and horseshoe pitching. Many of the students indulge in sports of recreational rather than competitive nature, such as skating, skiing, swimming, and canoeing.

In addition to offering facilities to play, the Intramural department organizes leagues among the different units of the campus, such as classes, fraternities, clubs, and others, with the idea of arousing interesting rivalry. This spirit of competition is aided by many attractive prizes which are given the winning teams and individuals.

The University is well equipped to handle such a big program of athletics and recreation. A busy spring afternoon will see as many as twelve games of baseball being played on the great playing space of Ferry Field; and a winter evening of basketball often numbers sixteen games. Waterman gymnasium, having four courts which can be used at the same time, permits the playing off of league schedules which contain over 150 basketball teams. The Yost field house, on Ferry Field, is also available for intramural sports.

The Intramural department is rapidly expanding its program so as to give close personal supervision over the men taking part in these many activities. Candidates for sports of a nature requiring endurance, such as long distance running or boxing, are made to undergo a careful course of preliminary training before they may compete in meets. Instruction is also given in the technique of the different branches. Another feature which is distinctly novel is the "building up" class for those who are not qualified from the standpoint of health to take part in contests and games. Such individuals are looked after by a competent instructor who gradually grades the difficulty of their exercise until they are personally fit.

The aims underlying the Intramural program are that of furnishing exercise and wholesome recreation; of stimulating social contact among the students so as to broaden them along general lines while they are specializing in one profession; and perhaps, most of all, to instil a knowledge and love of many sports, so that they may keep up their play spirit after the college life is over.

#### Dexter M. Ferry Athletic Field

By the generosity of Mr. Dexter M. Ferry, of Detroit, an addition of about twenty-five acres has been made to the grounds formerly known as Regents' Field. The combined tract of thirty-five acres lies a few minutes' walk southward from the campus, and is set apart and equipped especially for open-air sports. It contains a club house, stadia, gridiron, diamond, tennis courts, and tracks for intercollegiate athletics and similar grounds for interclass and intramural sports.

Anticipating the growth of interclass athletics and the consequent necessity of additional field space, the Athletic Association has purchased thirty-eight and seven-tenths acres of land immediately adjoining Ferry Field on the south.

### **YOST FIELD HOUSE**

Yost Field House, on Ferry Field, was dedicated in November, 1923, is 342 feet long by 165 feet wide and will house all indoor athletic activities. There will be a seating capacity of 12,500, an eight-lap-to-the-mile track, a 75-yard straight-away, several basketball courts, and provisions for indoor practice in football and baseball. All this will be in the main activity room, which will be 160 feet wide, 286 feet long, and clear of obstruction up to a height of 63 feet. Adequate accommodations are provided for the proper handling of all indoor university and freshman athletics, which have heretofore been conducted in Waterman Gymnasium. Four floors at the north end of the building will be devoted to trophy rooms, store rooms, drying rooms, locker and shower facilities for 4,200, and the offices of the Athletic Association.

### **PHYSICAL EDUCATION FOR WOMEN**

#### **Barbour Gymnasium**

The Barbour Gymnasium is named in honor of the Honorable Levi L. Barbour, of Detroit, a former Regent of the University and a liberal contributor to the funds for its erection. The building contains, in addition to the gymnasium proper, the offices of the Dean of Women and the Director of the Gymnasium; a club room and parlors for the college women; and a hall (Sarah Caswell Angell Hall) accommodating 550 people, for lectures, meetings, theatrical entertainments, etc. The gymnasium is a large room with floor space 90 x 80 feet, well lighted, well ventilated, and equipped with the necessary apparatus for individual and class work. The gallery has a running track 310 feet long. The basement contains dressing rooms, shower baths, and a swimming tank which is open to all women registered in the gymnasium, with instruction in swimming. Before beginning the gymnasium work each student receives a careful physical examination made by the members of the staff of the University Health Service and members of the staff of the department of Physical Education, and the work is assigned accordingly. If a girl is physically unable to undertake the general class work she is given individual work carefully adapted to her own need. Especial attention is given to the correction of faulty posture and any deformity that may be benefited by intelligent exercise. Tennis, baseball, team games, cricket, hockey, and archery, form part of the fall and spring work.



### Palmer Field

The Women's League has purchased, with the help of the Alumnae and a very generous gift from the Honorable Thomas W. Palmer, of Detroit, a tract of seven and one-quarter acres of land situated within five minutes' walk of the gymnasium. Hockey and baseball fields, tennis courts, and an archery range provide ample opportunity for varied outdoor exercise.

### Class Work

All freshman and sophomore women students in the College of Literature, Science, and the Arts, and the Colleges of Engineering and Architecture are required to complete satisfactorily, without credit in semester hours, a course in Physical Education in accordance with the outline stated below. The gymnastic work announced for freshmen and sophomores is a regular academic requirement, and as such, is subject to the usual regulations in regard to absence and quality of work.

A regulation costume of white blouse, black bloomers, and black gymnasium shoes is required. Owing to the necessity of having uniformity, gymnasium suits should *not* be purchased by students before they enter college. If it is necessary to do this, inquiries should first be sent to the Director of the Gymnasium in regard to the material and style required.

Every student is required to purchase a locker ticket from the Treasurer of the University before taking part in any courses offered in this department.

#### A Required Work:—For all freshmen and sophomores.

Freshmen—*M, F*, at 10, 11, 2; *Tu, Th*, at 2, 3.

Sophomores—*M, W*, at 3; *Tu, Th*, at 10, 11, 4.

- I. Fall and Spring work consists of elective sports: archery, baseball, basketball, hockey, tennis, quoits, and cricket.
- II. Winter work, from Nov. 10th approximately, until Spring vacation, consists of practical gymnastics, corrective gymnastics, and light gymnastics. Students are placed in these classes in accordance with the results of their medical examination. Hours for corrective and light gymnastics to be arranged.
- III. Hygiene lectures. All freshmen and entering sophomore students are required to attend a course of lectures on personal hygiene.

#### B. Elective Work:—

- I. Advanced gymnastics. Open to students who have completed the required work in this University or in another institution of collegiate grade. Two hours a week. Hours to be arranged.

- II. Dancing. This type of dancing is the expression of music by the individual, entailing a careful study of the structure and elements of music, such as melody, phrasing, moods, and different note values, and a careful progression of fundamental exercises for the purpose of gaining control of movements. Beginning and advanced classes, open to all students. Hours to be arranged.

III. Sports:—

- a. Outdoor. Archery, baseball, basketball, hockey, and tennis. Hours to be arranged.
- b. Indoor. Basketball, and swimming. Each two hours. Hours to be arranged.

### UNIVERSITY HEALTH SERVICE

The activities of the University Health Service are along three main lines: Personal attention; Sanitation; Education.

The personal division includes a complete physical examination of all students. From these records can be determined, in a large measure, just what is essential to keep a student in the best physical condition during his academic life. Other phases of the work in the personal division are:—

Provisions for maintaining the health of the normal, healthy student, including provision for proper exercise, physical education, and athletics, as outlined in the preceding pages.

Protection of the physically sound student from communicable diseases that continually creep into the University. This is done through early detection and isolation of all cases of communicable disease—tuberculosis, typhoid fever, smallpox, scarlet fever, mumps, measles, diphtheria, etc.

Provision for the care and treatment of cases of communicable diseases.

Reconstruction-Reclamation. Correction of defects, advice, and treatment to all subnormals.

Advice and treatment to all sick students.

The division of sanitation concerns itself with the sanitary conditions both on and off the campus. Eating houses, rooming houses, etc., will be inspected and regulated.

Every student in the University should be made familiar with the elements of personal and public hygiene through courses in this subject, daily bulletins, exhibits, lectures, etc.

The University Health Service occupies the building which was formerly the annex to the Homoeopathic Hospital. It is open at all hours of the day and night. The telephone number is 166, University Exchange.

The Health Service is supported by a portion of the student annual fees and provides for practically all of the necessary medical attention to students. A staff of eight physicians including two

women, two nurses, and assistants, devote their entire time to the interests of the student health.

*Dispensary.*—The Dispensary is open daily and students may receive free office medical attention and ordinary medicines. A student may consult any physician of the Health Service Staff at choice. Prescriptions are filled at the Health Service Pharmacy. If a student receives attention of a Health Service physician at his room, a charge of \$1.00 for a day call and \$2.00 for a night call is made. The corps of physicians in the Medical Schools coöperate with the Health Service whenever students need the attention of specialists. The Health Service is open to all students of the Summer Session, and for those remaining during the regular vacations. The dental clinics are open to students; the only charge being for material used. Students are advised to have their teeth examined at least once a year.

*Hospital Care.*—Twenty-five beds are provided at the Health Service for the care and treatment of sick students. Hospital service is entirely free to students.

*Health Preservation.*—The efforts to conserve health in the University consider many factors which are recognized as important in preventive medicine. Students are expected to obey the rules and regulations formulated by the University Committee on Sanitation. Failure to comply with these rules and regulations will be investigated, and may lead to discipline.

New students entering the University are advised to bring evidence of having been successfully vaccinated against smallpox, as this has been made a requirement for continued attendance at the University. Cases of infectious disease likely to injure the health of others are excluded from class rooms and from University attendance. In case of threatened smallpox, the University offers free vaccination to all students, but those who neglect vaccination and become infected with the disease are subject to such disposition as the Health Officer of the City may direct. Free immunization against typhoid fever will be given to any student.

Students are urged to select good rooms, with special attention to hygienic conditions. All rooms should be easily ventilated, kept at about 65 degrees temperature, separate for study and sleep, and should have single beds and individual drinking cups. Examination of sputum will be made at the Health Service laboratory and any student who has a cough which continues for a week or longer, should take the sputum there for examination.

The water supply of Ann Arbor is examined both chemically and bacteriologically every week, and when it is under suspicion these examinations are made daily. The student body is informed of the condition of the water by means of bulletins posted about the campus. Since the public water supply was introduced in 1885, no student has been known to contract typhoid fever from this source with but one exception. In 1894, the water became suddenly infected and

five cases of typhoid fever resulted, but these were mild and the source of infection was promptly detected and removed. On the slightest suspicion of infection of the water supply, students are advised to drink only boiled water until the source of contamination has been found and the water proved to be free from danger.

Preparators and servers of food and specimens of food from students' clubs, fraternity and sorority houses, boarding houses, etc., will be examined free of charge at any time. Most of the milk used in the city at present is pasteurized and hence not likely to cause illness.

### INTERCOLLEGIATE ATHLETICS

The general supervision of intercollegiate athletics is vested in a Board of Control, consisting of eleven members.\* The Board thus constituted has charge of all matters involving the relation of athletic sports to the University; for example, the eligibility of players proposed for any University team, the arrangement of intercollegiate games, the granting of leaves of absence, and the investigation of charges of misconduct on the part of players. The policy of the Board is to foster the spirit of honor and gentlemanliness in athletics, to suppress evil tendencies, and to see that play shall not encroach too much upon the claims of work. For the furtherance of these ends, certain specific rules and regulations have been adopted, a copy of which can be had on application to the Director of Intercollegiate Athletics.

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## MILITARY SCIENCE AND TACTICS

The department of Military Science and Tactics is conducting courses which are open to election for credit towards graduation by students of the College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, and the School of Education. The Reserve Officers' Training Corps is organized under authority of Act of Congress of June 3, 1916, as amended by Acts of Congress of September 8, 1916, July 9, 1918, and June 4, 1920. The courses of instruction in the various units of the R. O. T. C. have been standardized and are uniform in all colleges and universities, and the satisfactory completion of the courses of any unit leads to a commission as second lieutenant in the Reserve Corps of the corresponding branch of the army.

The courses of instruction, which are described elsewhere in this catalogue, fall into the four following programs: Infantry, Coast

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\* The Board of Control for the year 1923-1924 consists of Professors Agler, Johnston, Lee, and Frayer, and Mr. Fielding H. Yost, of the University Faculties; Messrs. John D. Hibbard, James E. Duffy, and Charles B. Du Charme, of the Alumni Association, and Messrs. Raymond A. Arndt, Stewart R. Boyer, and Egbert R. Isbell, of the student body. Mr. Yost is Director of Outdoor Athletics.

Artillery, Ordnance, and Signal Corps. The courses of the Infantry and Coast Artillery units are open to all eligible students of the two Colleges and the School mentioned, except that the completion of the subjects of plane and spherical trigonometry is a prerequisite for the courses of the Advanced Group of the Coast Artillery unit.

The courses of the Signal Corps unit are open only to students pursuing the curriculum in Electrical Engineering; those of the Ordnance unit are open only to students pursuing the curricula in Chemical and Mechanical Engineering.

Special arrangements have recently been made with the War Department by which students of Aeronautics who are enrolled in any one of the four R. O. T. C. units mentioned and who desire commissions in the Air Service Corps may attend one Advanced Camp of the Air Service, provided they pass the special physical examination prescribed for Air Service units. This camp will be in lieu of the advanced camp prescribed for the unit in which he is enrolled.

Enrollment is limited to male students who are citizens of the United States and whose bodily condition indicates that they are physically fit to perform military duty, or will be at the time of graduation. No member of the army, navy, or marine corps, or commissioned officer of the military or naval reserve forces, naval militia, or national guard is eligible for membership. Enrollment does not make a student liable to any service under the War Department.

The object of the Government in establishing the R. O. T. C. units is to provide military training for the purpose of qualifying selected students as reserve officers in the military forces of the United States. This object is attained during the time that students are pursuing their general or professional studies, and with the least practicable interference with their civil careers. The aim will be to give all students of the R. O. T. C. a thorough physical training, to inculcate in them a respect for lawful authority, to teach the fundamentals of the military profession, leadership, and the special knowledge required to enable them to serve efficiently in the various branches of the military service.

### **Courses**

The courses are divided into two periods: the Basic Group and the Advanced Group. The Basic Group consists of the first two years in the military department, with an optional period at a summer camp, usually at the end of the first year. The Advanced Group consists of the last two years in the military department, with a second and required period at a summer camp, usually at the end of the third year. For good reasons, changes in the time of attendance at summer camps may be obtained upon application. Attendance at the Basic Camp is voluntary on the part of the student. Attendance at the Advanced Camp is compulsory for students who receive commutation of subsistence, and is a prerequisite for graduation for those students. Theoretical instruction is given mainly during the

academic years; practical instruction mainly in the summer camps.

Students who have elsewhere taken courses in Junior R. O. T. C. units may frequently be admitted to the courses of the Advanced Group in the University.

### Elections and Credit

Students electing Military Science and Tactics do so for the four courses of one of the Groups. The first election is for the four courses of the Basic Group, except in cases where credit is given for work completed elsewhere, after which, if recommended for further training, the student may elect the four courses of the Advanced Group. Mere enrollment with the Officers of the R. O. T. C. does not constitute registration; *the student must include his Military course in his regular college election, made in the usual way, at the regular time.* One semester hour credit is given for each of the four courses of the Basic Group; two semester hours for each of the four courses of the Advanced Group. More than the regular maximum number of hours, whether partly military or wholly academic, may be elected only subject to the regulations governing extra hours in the School or College concerned. Freshmen in the College of Engineering may substitute the Course in Military Science and Tactics for Shop Practice 2, and may carry seventeen hours, including Military Science. Freshmen in the College of Literature, Science, and the Arts, may secure permission from the Committee on Elections to carry sixteen hours.

The completion of all four courses comprising either group, when once entered upon, is a prerequisite for graduation. The Advanced Group includes the Advanced Camp.

Upon the recommendation of the Professor of Military Science and Tactics, a student may be discharged from the R. O. T. C. by the appropriate University Authority and from the necessity of completing the courses as a prerequisite for graduation.

A member of the R. O. T. C. who withdraws from one university and enters another is not released from his obligation, but must complete the courses undertaken (either basic or advanced) as a prerequisite for graduation if the second institution maintains a corresponding unit of the R. O. T. C.

### Compensation, Uniforms, and Equipment

When any member of the R. O. T. C. has completed the four courses of the Basic Group, or its equivalent, he may, if otherwise qualified, be admitted to the Advanced Group. Any member of the Advanced Group who executes the following written agreement will receive, when not rationed in kind, the commutation of subsistence fixed by the Secretary of War, provided that the program is pursued continuously for the two years necessary to complete it:

Ann Arbor, Michigan,.....192..

In consideration of commutation of subsistence to be furnished me in accordance with the law, I hereby agree to continue in the Reserve Officers' Training Corps during the remainder of my course in the University of Michigan (not to exceed two years), to devote five hours per week during such period to the military training prescribed, and to pursue the course of camp training during such period, prescribed by the Secretary of War.

Witness.....

Commutation of subsistence has been fixed for the present year at thirty cents per day and is paid from the date of the contract until the completion of the course, including the usual vacation periods during the two academic years, plus that portion of the interval between such years when college is not in session that is not devoted to advanced camps for his branch, during which subsistence is furnished in kind.

At the R. O. T. C. camps the Government furnishes the student with subsistence, quarters, uniforms, equipment, and medical attendance. An allowance of five cents per mile is given for transportation to and from camp. In addition students of the Advanced Group are paid seventy cents per day while at camp.

Uniforms and equipment are furnished by the Government.

## UNIVERSITY EXTENSION DIVISION

The Extension Division of the University of Michigan was organized to furnish to the state at large such forms of public service as may legitimately be rendered by a state University. The activities of this Division are administered through the medium of twelve bureaus, which coöperate with the departments of the various Schools and Colleges of the University. These twelve bureaus are as follows: Bureau of University Extension Courses, including (a) free extension lectures, (b) extension courses in series, and (c) university credit courses; Bureau of Visual Instruction; Library Extension Service; Public Speaking and Debating; School and Community Dramatics; Municipal Reference Bureau; Educational Service, department of Education; Museum Extension Service; Civic Improvement; Forestry Extension Service; Engineering Extension Service; Public Health Service.

In connection with this extension service the University of Michigan seeks to operate, as far as possible, through the avenues of established university channels; that is, it seeks to make use of such existing university facilities as are available, and thereby to give to the state the largest possible measure of public service commensurate with the equipment and facilities of an educational institution of university grade.

A special bulletin, descriptive of the work of the Extension Service, and such other information as may be desired regarding extension service, may be obtained by writing the Director of the University Extension Division.

### BUREAU OF GOVERNMENT

The Bureau of Government, located in Room 21, General Library, is established under supervision of the department of Political Science for the purpose of assisting public authorities and students in obtaining information concerning governmental affairs. It collects, and arranges material, publishes reports on special topics, and furnishes information upon request. Professor Thomas H. Reed is Director.

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## ORATORICAL ASSOCIATION

In addition to the University instruction in Public Speaking, an active and earnest interest is fostered and maintained through the agency of the Oratorical Association, which arranges and conducts debates and oratorical contests and coöperates with similar organizations in other institutions.

This Association was organized by students of the College of Literature, Science, and the Arts, and of the Law School, under the guidance of the department of Public Speaking, to foster an interest in oratory and debate, and also to participate in the annual contests of the Northern Oratorical League, the Central Debating League, the Mid-West Debating League, the Michigan-Ohio League, and in such other contests as may be arranged by the Association.

At the annual oratorical contest held the third Friday of March, the student who takes first honors, represents the University in the annual contest of the Northern Oratorical League. Freshmen and graduates are not eligible to compete. In 1923, the first and second honors were awarded, respectively, to Gerret Demmink and Floyd Howard Skinner.

*Chicago Alumni Medal.*—The Chicago Alumni Association of the University of Michigan offers annually a bronze medal as a testimonial for excellence in oratory. The medal, designed by Mr. Louis H. Sullivan, of Chicago, is given to the student who is awarded first honor in the University Oratorical Contest.

*Paul Gray Testimonial.*—In 1920, Paul Gray, of Detroit, set aside an endowment of \$3,000 for the stimulation of interest at the University in the annual oratorical contest. From the interest accruing therefrom the sum of \$100 is awarded to the student receiving first honor, and \$50 to the student receiving second honor.

### Northern Oratorical League

The Northern Oratorical League composed of the oratorical associations of the University of Michigan, Northwestern University,



the University of Wisconsin, the State University of Iowa, the University of Minnesota, and the University of Illinois. Its purpose is to foster an interest in public speaking and to elevate the standard of oratory, by holding annual contests. The contests are open only to undergraduates.

*Lowden Testimonial.*—To encourage public speaking in the universities whose oratorical associations compose the Northern Oratorical League, the Honorable Frank O. Lowden, of Chicago, in 1901 established an endowment fund, amounting to \$3,500, and placed it in the hands of the Regents of the State University of Iowa, as trustees. From the interest annually accruing therefrom the sum of \$100 is awarded to the person receiving first honor at the annual contest of the Northern Oratorical League, and \$50 to the person receiving second honor.

### **Extemporaneous Contests**

Public contests in extempore speaking are held each semester under the auspices of the Oratorical Association. These contests are open to undergraduates who have not represented the University in intercollegiate debate or oratory. Subjects of immediate and vital importance are selected for these contests.

First and second and third honor men in these contests are eligible to compete for the Atkinson Medal and Testimonial on the second Friday of May of the same college year.

### **Atkinson Testimonial**

As a testimonial in memory of his son, Charles Maurice Atkinson, of the Class of 1922, Mr. Orie C. Atkinson, of Battle Creek, has established an endowment fund the interest of which provides annually a prize of fifty dollars and a gold medal for the undergraduate student, eligible from the extemporaneous contests, who shall win first honor in an oratorical contest on the general subject, "Student Character (Moral and Spiritual) for World Citizenship."

A silver loving-cup will be presented to the student who wins second honor in this contest.

### **Central Debating League**

The Central Debating League is composed of the debating associations of the University of Michigan, Northwestern University, and the University of Chicago. Its purpose is to discuss, in public, leading questions of the day, and in this way to develop ready and useful speakers. These debates occur on the third Friday in January and are open only to undergraduates.

*Couzens Testimonial.*—The Honorable James Couzens, of Detroit, has been providing each year, for several years, the sum of \$300, to be awarded in equal amounts to the six students who shall represent the University in the Central Debating League.

*Couzens Medals.* — Senator Couzens has also been contributing annually the sum of \$100 for the purpose of furnishing appropriate gold medals for the six men who appear in the Central League debates.

### Midwest Debating League

The Midwest Debating League includes the universities of Michigan, Wisconsin, and Illinois. In this triangular organization each university debating association maintains an affirmative and a negative debating team. Three debates occur simultaneously, the third Friday in March, one at each university. These debates are open only to undergraduates.

*Gray Testimonials.*—The John S. Gray heirs, of Detroit, provide annually the sum of \$300, to be awarded in equal amounts of \$50 as testimonials to the six students who shall represent the University in the Midwest debates.

As a memorial to the late John S. Gray these prizes are designated by his heirs as the *John S. Gray Testimonials*.

*Gray Medals.* — The John S. Gray heirs also provide annually \$100 for appropriate gold medals to be given to the six students who shall represent the University in the debates of the Midwest League. These are known as the *John S. Gray Medals*.

### Michigan-Ohio Debating League

This League is composed of the University of Michigan and Ohio State University. It was organized to foster public discussion among the women of the two universities. In debating public questions of the day, each university maintains an affirmative and a negative team. The affirmative team remains at home and debates the visiting negative team of the other university. So dual debates are held annually, one at each university on the first Friday evening of December.

### Eleanor Clay Ford Endowment

To encourage public speaking and debating among the women of the University, Mrs. Eleanor Clay Ford, of Detroit, in 1923 established an endowment fund of \$8,000, the interest accruing from which is to provide annually testimonials of \$50 each and gold medals for the six women who shall represent the University of Michigan in the Michigan-Ohio women's debate.

### Michigan High School Debating League

In 1917 the Extension Division of the University, in cooperation with the department of Public Speaking and the Library Extension Service, organized the Michigan High School Debating League. Already one hundred eighty schools have joined the League. The League seeks to promote effective public speaking and the use of good English and to stimulate public discussion of state and national

questions. Preliminary debates are held leading towards a State Debate to be held in Ann Arbor on Friday night of the Interscholastic field meet. Further information may be obtained from Ray K. Immel, Assistant Professor of Public Speaking, The University.

### Lecture Course

In addition to the local intramural and intercollegiate contests in debate and oratory offered on its course, the Oratorical Association provides each year, at a low price of admission, an attractive course of lectures and readings, with the special end in view of developing a strong interest in the art of public speaking in the University community, and of affording opportunity of seeing and hearing the most distinguished authors and public men of the day.

### UNIVERSITY LECTURES

It is customary each year to conduct a series of lectures by men of distinction both from this country and abroad, who on the request of the various departments are invited to speak under the auspices of the University. These lectures are ordinarily given at 4:15 P. M. in the Natural Science Auditorium, and are open to the public. During the year 1922-1923, the following gave University lectures:

Vilhjalmur Stefansson, LL.D., speaker at the University Convocation, March 30, 1923; Professor Antonio G. Sololinde, of Madrid, Lecturer in Spanish for the year 1922-1923; Dr. Worthington Chauncey Ford, editor, Massachusetts Historical Society; J. S. MacKenzie, Litt.D., LL.D., Professor of Philosophy at the University of Wales; Dr. Herbert E. Hawkes, Dean of Columbia College; Dr. Ibrahim Fouad Bey, former Member of the Turkish Cabinet; Rear Admiral Charles P. Plunkett, United States Navy; Dr. David Moore Robinson, Professor of Archaeology and Lecturer in Greek, Johns Hopkins University; Lawrence Johnston Burpee, Secretary for the Canada International Joint Commission; Professor Henri Hauser, of the Sorbonne, Paris, Exchange Lecturer at Harvard University; Professor John C. Merriam, President of the Carnegie Institution, Washington, D. C.; Dr. Henry Hurd Rusby, Professor of Botany, Physiology, and Materia Medica, Columbia University; Roger Bigelow Merriman, Ph.D., Professor of History, Harvard University; Professor Jean-Marie Carré, Professor of Comparative Literature, University of Lyons, France; Honorable Henry Hastings Curran, former President of the Borough of Manhattan; Dr. Edwin Francis Gay, Editor of the New York Evening Post, speaker at the Washington's Birthday Convocation; Edward Sapir, Chief of the Division of Anthropology in the Victoria National Museum, Ottawa, Canada; Count Alfred Korzbyski, author of the *Manhood of Humanity*; Gustav Holst, musical conductor and composer, London, England; Dr. William Berryman Scott, Professor of Geology and Paleontology,

Princeton University; Dr. Theodore deLaguna, Professor of Philosophy, Bryn Mawr College; Dr. Walter Rosenhain, Director of the Metallurgical Division, National Physical Laboratory, Hedington, England; William Belmont Parker, editor; Dr. Charles McLean Andrews, Professor of History, Yale University.

## **OTHER UNIVERSITY ORGANIZATIONS**

### **The Michigan Union**

The University of Michigan Union was organized and incorporated under the laws of the State of Michigan in 1904 to establish a University social center; to provide a meeting place for faculty, alumni, former students, and resident students of the University; to furnish a home for alumni when in Ann Arbor, and a place for wholesome relaxation for students, so that their leisure time, their amusements, and their student interests, through the medium of the University atmosphere of the Union, might become a component part of their education. The Union, furthermore, seeks to inculcate educational ideals through its student activities; for as a social center it encourages and stimulates activities that are for the welfare and enjoyment of the student body, and the result is a richer, more intense University life, a product of the students' own work. This develops group-spirit, a sense of loyalty to the community served, pride in work accomplished, a widened circle of friendships, and broadened experience and viewpoint of life. The Union, in emphasizing the social value of education, complements the work of the University in its endeavor to graduate "broadly" educated men and citizens.

The Union serves also as a democratizing influence in the student body. It recognizes no artificial barriers nor distinctions and seeks to fit Michigan men for the performance of their duties as good citizens.

The government of the Michigan Union is vested in the Board of Directors. It consists of seven students, six alumni, including the General Secretary of the Alumni Association, three members of the Faculty, and the General Manager, Financial Secretary and General Secretary, *ex officio*. The President, the five Vice-Presidents representing the several schools and colleges in the University, and the Recording Secretary are students. The activities of the Union are conducted through departments in charge of several officers, and through standing and special committees authorized by the Board of Directors. The interests of the Union are as broad as are the student interests. As a result, well over a thousand students are members of some department or committee engaged in Union work. And almost all University men find that the Union enters largely into their University life through the facilities it offers them to employ their time and interests.

The New Union Building is now practically finished. Among its many attractions, the building provides a swimming pool, six bowling alleys, a barber shop, a billiard room with twenty-four tables, a lounging room, restaurant service including a cafeteria, a women's dining room, a main dining room, and an Assembly Hall, adapted to use for banquets, meetings, conventions, smokers, concerts, and dances. Forty-nine sleeping rooms, accommodating 68 persons, are designed for alumni and guests of members. The building will be the headquarters and gathering place for all Michigan men to which students, alumni, former students, and faculty are eligible.

The entire cost of the land, building, and equipment has been met by gifts of alumni, students, and friends of the University, without any cost whatsoever to the State. About twenty thousand members of the University's constituency have subscribed to this splendid gift.

Between twelve and fifteen hundred meetings including informal lectures, class and departmental meetings, dinners, and society affairs are held at the Union during the year. Departmental faculty meetings are held at the Union periodically for the discussion, in an informal way, of questions relating to the University departmental affairs.

The kinds of membership to which all Michigan men are eligible are as follows:

*Student Annual Membership.*—Fee, \$6.00, fixed by the Board of Directors, and by Resolution of the Board of Regents. This fee is incorporated in the annual tuition of every student of the University.

*Non-Resident Annual Membership.*—The Constitution provides that persons eligible to membership who live at a distance greater than 60 miles from Ann Arbor are classified as non-resident members and annual dues for such members are set at \$5.00 a year.

*Resident Annual Members.*—Provision is also made for persons eligible to membership who live within the 60-mile radius. By such members the resident membership fee of \$10.00 is paid annually.

*Life Membership.*—Fee, \$50.00 for students during their last year of residence at the University of Michigan, or within one year thereafter; \$100.00 for all other persons eligible for membership.

*Participating Life Members.*—The constitution provides for the payment of life membership dues in five equal annual installments. During the period of these payments the applicant is enrolled as a participating life member and upon payment of the last installment becomes, ipso facto, a life member.

### The Women's League

The Women's League, organized in 1890, is the clearing house for all women's activities in the University. It aims to unify the women in the interests of the University, both academic and social.

Every University woman is a member of the Women's League by virtue of the membership fee of one dollar which is included in the registration fee of the University. In the thirty years of its activity the Women's League has assisted in raising funds for Barbour Gymnasium and the parlors which serve the purpose of a women's building; for Palmer Field, the women's athletic grounds; and it has been the spiritual pioneer in the movement for residence halls, resulting in the gifts of Helen Newberry Residence, the Martha Cook Building, Alumnae House, and Betsy Barbour House. The work of the Women's League is carried on by a system of committees. The Social Committee and the House Committee cooperate to make the parlors connected with Barbour Gymnasium the center of social activities among all University women. The Intercollegiate Committee organizes an advisory system by which entering upperclass women are assisted, during registration and throughout the year, to establish themselves in the unity of the University. The Vocational Conference Committee arranges each year for a series of meetings and speakers upon vocations open to women, and particular stress is laid upon the preparation which women may make in the University for these vocations.

The Judiciary Council is the self-government branch of the Women's League. This Council has charge of such matters of conduct and House regulation as are referred to it by the Board of Directors of the Women's League and the Dean of Women.

### The University Musical Society

*The University Musical Society* is a body corporate, organized under Article 171 of the Public Acts of Michigan of 1903, entitled "An act for the incorporation of associations not for pecuniary profit." Its purpose is "to cultivate the public taste for music and afford opportunities for the acquisition of musical knowledge and skill," and to this end it is empowered to establish and maintain "a school of music, a choral society, an orchestra, and to give public concerts." Its membership is limited to the original incorporators and officers and graduates of the University. Its fees for tuition, concerts, etc., are placed at the lowest possible point compatible with sound business principles, the financial side serving but as a means to an artistic and an educational end.

**THE UNIVERSITY SCHOOL OF MUSIC.**—The University School of Music, situated in Ann Arbor, gives systematic instruction in vocal, instrumental, and theoretical music, such as the University does not undertake to provide. It possesses an ample and highly trained faculty. Students above the rank of freshmen in the College of Literature, Science, and the Arts, of the University may, with the permission of the head of the department of Music in the University, elect not to exceed two hours per semester of practical music in the School of Music to count towards the University degree. University stu-

dents may, by a proper arrangement of their University elections, satisfy the theoretical requirements for an Artist Diploma in practical music, and at the same time have these courses count towards the University Degree. Catalogues may be obtained by addressing Charles A. Sink, Secretary, The University School of Music, Ann Arbor, Michigan.

**THE UNIVERSITY SYMPHONY ORCHESTRA.**—A complete orchestra of about sixty members from the University and the School of Music receives thorough training under the head of the Violin Department of the School of Music. It gives several public concerts during the year.

**THE UNIVERSITY CHORAL UNION** is an organization of students and others, for study and practice of choral music under the direction of the professor of music in the University, and for the promotion of general music culture. It is one of the largest student musical organizations in the world. Each year it takes part in the Annual May Festival by contributing several of the larger choral works.

Under the auspices of the University Musical Society the following courses of concerts are announced for the year 1923-1924:

**FORTY-FIFTH ANNUAL  
CHORAL UNION AND MAY FESTIVAL SERIES**

**PRE-FESTIVAL CONCERTS**

1. Oct. 19, 1923, Amelita Galli-Curci, Soprano; Homer Samuels, Pianist; Manuel Berenguer, Flutist.
2. Nov. 5, 1923, Vladimir De Pachmann, Pianist.
3. Nov. 22, 1923, Cosi Fan Tutte, William Wade Hinshaw, Director.
4. Dec. 12, 1923, Efrem Zimbalist, Violinist.
5. Jan. 25, 1924, Feodor Chaliapin, Bass.
6. Feb. 11, 1924, Erno Dohnanyi, Pianist.

**THIRTY-FIRST ANNUAL MAY FESTIVAL**

7. May 21, 1924, First May Festival Concert.
  8. May 22, 1924, Second May Festival Concert.
  9. May 23, 1924, (Afternoon) Third May Festival Concert.
  10. May 23, 1924, (Evening) Fourth May Festival Concert.
  11. May 24, 1924, (Afternoon) Fifth May Festival Concert.
  12. May 24, 1924, (Evening) Sixth May Festival Concert.
- The organizations announced for the Festival at the time of going to press, are the following: The University Choral Union, Earl V. Moore, Conductor; Children's Chorus, George Oscar Bowen, Conductor; the Chicago Symphony Orchestra, Frederick Stock, Conductor.

Further announcements of soloists will be made later.

**FIFTH ANNUAL EXTRA CONCERT SERIES**

- Oct. 22, 1923, Sousa's Band.  
Nov. 12, 1923, Detroit Symphony Orchestra, Ossip Gabrilowitsch,  
Conductor; Michael Press, Violinist.  
Dec. 4, 1923, Detroit Symphony Orchestra, Victor Kolar, Conducting;  
Richard Crooks, Tenor.  
Jan. 22, 1924, Detroit Symphony Orchestra, Ossip Gabrilowitsch,  
Conductor; Arthur Shattuck, Pianist.  
Feb. 18, 1924, Mr. and Mrs. Josef Lhevinne, Pianists.

**TWILIGHT ORGAN RECITALS**

In addition to the series mentioned above a series of weekly recitals is given on the Frieze Memorial Organ in Hill Auditorium Wednesday afternoons at 4:15 p. m. Mr. Palmer Christian, University Organist, is in charge. Like the Faculty Concerts they are free to the Public.

**Cercle Francais**

In connection with the French department, the Cercle Français offers students an opportunity to improve their pronunciation and their general knowledge of the language through the thorough study and presentation of French dramatic masterpieces. The club is composed of active, associate, and honorary members. All associate members are eligible to election to active membership upon the recommendation of a committee composed of the Director and three student members appointed by the president of the club. Aside from the dramatic performances, the Cercle seeks to further interest in French language, literature, and life by weekly lectures given by members of the French department and by distinguished men of letters from abroad.

**Circolo Italiano**

The aims of the Circolo Italiano are to promote interest in Italian civilization. With this end in view, lectures on Italian arts, literature, science, and Italian culture in general are given from time to time by members of the faculty. Since the Italian language is spoken constantly at the meetings of the club, students of Italian have an opportunity to increase their knowledge of the language. Readings in Italian, and dramatic performances are often given for the entertainment of the members. All University students interested in Italian civilization, and all members of the faculty are eligible to membership in this club.

**Sociedad Hispanica**

La Sociedad Hispanica de la Universidad de Michigan is a voluntary student organization with a limited number of active members. Associate members, admitted by a majority vote of the society,



are permitted to take part in all its activities; but do not enjoy the right to vote upon matters of policy or business. The purpose of the organization is to promote interest in the Spanish language and literature, and in the relations of the occidental Latin world to the United States. Throughout the academic year meetings are held fortnightly, with regular literary programs and the general use of Spanish in unconstrained conversation, affording opportunity for practice in the spoken language supplementary to the work of the class room. Incidentally the association will annually give public performance of a standard dramatic work, as well as offer a course of lectures dealing with matters of interest to the general public.

### **Chamber of Commerce**

To acquaint the student of economics with the practical side of business at the same time that he is receiving the theoretical side in school is the aim of the Chamber of Commerce of the University of Michigan, the first and only organization of its kind in the college world. It is affiliated with the Ann Arbor Chamber of Commerce and affiliation with the other Chambers of Commerce will soon be arranged. The organization brings successful business men to speak before the members at its meetings. A primary function of the chamber is the securing of positions for its members upon graduation. In a word, it aims for civic and campus improvement, educational development, and the betterment of commercial ideals. Membership is limited to those receiving recommendations from some member of the faculty or from any active member of the organization.

### **Michigan Dames**

The Michigan Dames, an organization composed of the wives of graduate and undergraduate students, was founded in 1914, and now numbers about one hundred members. Its aims are social and educational, and special care is taken to make the wives of new students at home in Ann Arbor. All students' wives are urged to become members. Requests for further information should be addressed to The President of the Michigan Dames, in care of the Dean of Women.

*Other Organizations.*—Other organizations of various nature and purposes exist among the faculty and the student body, which cultivate other interests of the University life not so closely connected with the work of any special department.

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## **ADMISSION TO THE UNIVERSITY**

The requirements for admission to the various schools and colleges of the University are given in detail in the pages of the Cata-

logue devoted to those schools and colleges. In brief it may be said that the satisfactory completion of a full four-year course in a standard high school, amounting to at least fifteen units, is required for admission to each of the three colleges, the College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, and the College of Pharmacy, while one year of collegiate work is required for admission to the College of Dental Surgery, and two years of collegiate work are required for admission to the Medical School, the Law School, and the School of Education.

## **LIVING ACCOMMODATIONS FOR MEN**

There are no dormitories for men and no commons connected with the University, the men all rooming and boarding in private houses.

A bureau of information regarding rooms and board is maintained in the office of the Dean of Students and men students interested in either should communicate with that office.

In order to avoid so far as possible misunderstandings between landlord and student, a uniform lease, or memorandum of agreement has been prepared for the use of students when renting rooms. While the use of this agreement is not compulsory, it is recommended that students ask for it when renting rooms.

Particular attention is called to that portion of the agreement relating to the price to be paid for the room. It has been found to be more satisfactory if the price per semester rather than the price per week be the basis of the agreement. Payment may be made by the week, if agreeable to both parties, the equivalent rate per week being determined by dividing the rate per semester by nineteen for the first semester and seventeen for the second, as for this purpose the first semester is considered to consist of nineteen weeks and the second of seventeen.

### **UNIVERSITY OF MICHIGAN ROOMING HOUSE AGREEMENT FOR MEN**

It is recommended that this agreement be universally used in renting rooms.

The University will feel under no obligation to attempt the enforcement of verbal negotiations.

It is understood that all disputes and misunderstandings between student and householder arising under this agreement are to be referred for final settlement to the Dean of Students or his representative; that each student is to be individually responsible for his share of the rent only; and that he is to be governed by the house rules for rooming houses as adopted by the University.

I hereby agree to be responsible for the rent of.....room at .....at the rate of \$.....per semester for the first semester of the school year.....to be paid in advance as follows: ..... unless I should be obliged to leave the University, or unless conditions in

the house as to order, quiet, heat, comfort and cleanliness should make it advisable in the judgment of the Dean of Students or his representative for me to leave earlier; and that this agreement will be automatically renewed for the second semester at \$. . . . . per semester unless, at least two weeks prior to the end of the first semester, I give notice of intention to leave.

(Signed) . . . . . Student

I agree to rent the room to the student whose signature appears on this agreement under the terms set forth above, and to keep it warm, clean, comfortable and suitably furnished for student purposes, and to supply hot water at reasonable hours, and to furnish electricity for light at . . . . . watts per person but not for electrical appliances.

(Signed) . . . . . Householder

Date . . . . .  
Please sign in duplicate, each party retaining one copy.

### HOUSE RULES FOR ROOMING HOUSES FOR MEN

1. Unless otherwise provided, the lady of the house shall be the responsible director and shall be known as the "Head of the House."
2. Absolutely no intoxicating liquor and no gambling shall be allowed in the house.
3. Quiet hours shall be maintained after eight o'clock P. M. every night except Friday and Saturday nights, and after eleven P. M. on these two nights. During these quiet hours there shall be no loud talking in rooms or halls, and no use of musical instruments in a manner which may disturb other occupants of the house. It is expected that quiet will be maintained in all the rooms in the house regardless of who occupies them.
4. No disorder will be permitted in rooms or halls at any time.
5. If smoking in the room is permitted, all cigar and cigarette stubs, matches, ashes, etc., must be properly cared for by the occupant, and he must assume responsibility for any damage resulting therefrom.
6. Care should be exercised to turn off light, gas, and water when not in use.
7. No guests shall be lodged in student rooms at any time, without the knowledge and consent of the Head of the House.
8. A student shall be held liable for any damage done to his room, or the furnishings in it, other than that due to ordinary wear and tear.

Approved:  
M. L. Burton, President.

J. A. Bursley,  
Dean of Students.

### APPROVED HOUSES FOR WOMEN

Since the University believes that men and women should room in different houses, all undergraduate women in the University, except those living at home, are required to live in the Halls of Residence, Sorority Houses, or University Houses. Sorority Houses are open only to members. University Houses are independent lodging houses whose physical conditions have been inspected and approved by the Dean of Women. Every house is required to have a parlor upon the first floor where the residents may entertain their friends.

There are at present at the University of Michigan five residence halls for women—Martha Cook Building, Helen Newberry Residence,

Betsy Barbour House, Alumnae House, and Adelia Cheever House. The first three of these buildings are fire-proof, four stories in height, and contain elevators. Martha Cook Building can accommodate 118 students; Helen Newberry Residence, 82 students; Betsy Barbour House, 86 students. With few exceptions, rooms in all three residences are single. The rooms are heated by steam, lighted by electricity, and furnished. Each residence contains a well equipped laundry and a sewing room for the use of resident students.

Alumnae House has been provided through the efforts of alumnae of the University. It is a two-story building attractively arranged, and accommodates 16 students. It is operated on the cooperative plan. Each woman in the house is responsible for some part of the light housework, for which she receives fair compensation.

Adelia Cheever House, a gift in memory of Mrs. Cheever, consists of the main building, a pleasant two-story house accommodating 18 girls, and the Pamela Noble Cottage, housing 12 girls. It is operated on a co-operative plan similar to that of Alumnae House.

A lease resembling that used by the men, with the exception of item 6 (bed linen is not furnished to the women), has been prepared for the use of women students, and while its use is not compulsory, students are strongly recommended to ask for it, and to understand all stipulations before signing.

The preliminary application for rooms should be made to the Dean of Women. Changes in rooming places after the beginning of the semester may be made only with the approval of the Dean of Women.

The Women's League, of which all women students are members, shares with the Dean of Women responsibility for the rules under which every house operates. A copy of these rules will be sent upon request.

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## ATTENDANCE AND DISCIPLINE

The State of Michigan extends the privileges of the University, with only moderate charges, to all persons of either sex who are qualified for admission. Thus it does not receive patronage, but is itself the patron of those who seek its privileges and its honors. It cannot, however, be the patron of idleness or dissipation. Its crowded classes have no room except for those who assiduously pursue the studies of their choice, and are willing to be governed in their conduct by the rules of propriety.

Students not in their places at the opening of the semester must present written excuses from their parents or guardians for the delay.

Such delinquencies as tardiness, absence, deficiencies, and offences against good order, in the several departments of instruction, are ordinarily dealt with by the Administrative Officers of the school or college in which the student is enrolled. Flagrant cases are reported to the Faculty for adjudication.

Students are suspended or dismissed whenever, in the opinion of the Faculty, they are pursuing a course of conduct seriously detrimental to themselves or the University.

The following is a By-Law of the Board of Regents:—

"Whenever any faculty is satisfied that a student is not fulfilling, or likely to fulfill, the purpose of his residence at the University, or is for any cause an unfit member thereof, the President shall notify his parents or guardian, that they may have an opportunity to withdraw him, and if not withdrawn within a reasonable time, he shall be dismissed."

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## **RELATION OF STUDENTS TO CIVIL AUTHORITIES**

Students are temporarily residents of the city, and, like all other residents, are amenable to the laws. If guilty of disorder or crime, they are liable to arrest, fine and imprisonment. A rule of the University Senate provides that if a student is arrested, or is convicted of any offense by the civil authorities, he shall be cited to appear before the Faculty of the school or college in which he is matriculated, and shall be liable to suspension or expulsion.

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## **STUDENT ORGANIZATIONS AND INTERESTS**

While matters relating to the scholarship of students are looked after by the faculties of the various Schools and Colleges composing the University, all questions concerning their general conduct, living conditions, etc., are handled by the Dean of Students or the Dean of Women for the men and women students, respectively, and supervision and control of all student activities, other than athletic, are vested in the Senate Committee on Student Affairs, of which the Dean of Students is Chairman and executive officer. The accounts of all student organizations are subject to the approval of the Auditor and Comptroller of Student Organizations and must be presented to him for audit at least once each year and as often as he shall require.

The Committee on Student Affairs, composed of the Dean of Students, Dean of Women, and three other members of the Senate appointed annually by the President, has jurisdiction over the establishment of student organizations and the management of their affairs and the launching of new enterprises and activities including entertainments of various sorts, and determines the eligibility of students to take part in these activities, as well as to hold offices. The authority of this committee is derived from the University Senate and extends to all non-athletic activities and to all students in every school and college of the University. Activities of various types

are supervised directly by appropriate sub-committees, while the question of eligibility to participate in any non-athletic activity is under the immediate charge of the Dean of Students. The rules governing eligibility, which have been approved by the Senate, and which apply equally to all schools and colleges of the University, are given below.

## **RULES GOVERNING PARTICIPATION\* IN PUBLIC ACTIVITIES**

### **I.**

*Public Activities.* — Public activities include: (1) Participation in any oratorical or debating contest, or any dramatic or musical exhibition; (2) Service on student publications; (3) Holding a Class or University Office; (4) Official connection with any of the so-called college functions, such as the Junior Hop, Women's Banquet, and similar activities. The list is not intended to be exhaustive, but merely to indicate the character and scope of the activities referred to.

### **II.**

*Eligibility.*—The manager or chairman of every student activity is required to submit to the Chairman of the Committee on Eligibility a complete list of all students who expect to participate and to ascertain their eligibility before proceeding further with the enterprise. No student may take part in any public activity until an official certificate of eligibility is filed with the proper officer in charge of that activity.

### **III.**

*Probation.*—Students on probation are forbidden to take part in any public activity.

### **IV.**

*Warning.*—Students on the warned list are forbidden to participate in any public activity.

### **V.**

*Conditions and Failures.* — Students having outstanding conditions or failures are prohibited from participating in any public activity except by special permission from the Senate Committee on Student Affairs. In general a grade of D will be considered as a condition.

### **VI.**

*Special Students.* — Special students are prohibited from participating in any public activity except by special permission of the Senate Committee on Student Affairs.

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\* Participation is to be interpreted as including candidacy for office or any specific preparation for a public activity, or management thereof.

## VII.

*First Year.* — No student shall take part in any public activity during his first year of residence in the University, except by special permission of the Senate Committee on Student Affairs. Such special permission will not be granted during the first semester of residence, but may for proper reasons be granted to students above the rank of freshman, who have satisfactorily completed one full semester's work. This shall not exclude such students without conditions and otherwise in good standing, from participating in the public activities of their class.

## VIII.

*Physical Disability.*—Students excused from gymnasium work on account of physical incapacity are forbidden to take part in any public activity, except by special permission of the Senate Committee on Student Affairs. In order to obtain such permission, a student may in any case be required to present a written recommendation from the University Health Service.

## IX.

*General.* — The Senate Committee on Student Affairs has the right to prohibit a student from participating in any public activity whenever, in the opinion of the Committee, such participation is detrimental to his college work.

## X.

*Extra Mural Activities.*—Students who are ineligible to participate in public activities within the University are prohibited from taking part in other activities of a similar nature, except by special permission of the Senate Committee on Student Affairs.

## XI.

*Special Permission.* — The special permission to participate in public activities in exception to Rules V, VI, VII, VIII, and X, will be granted by the Senate Committee on Student Affairs only upon the positive recommendation of the Faculty of the school or college to which the student belongs. Petitions for such special permission must in every case be presented before the participation in the activity is begun.

## XII.

*Discipline.* — Cases of violation of these rules will be reported to the Faculty concerned for discipline.

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## STUDENT SELF HELP

While the University does not guarantee to furnish work to students, an employment bureau for men students is maintained in the office of the Dean of Students, and many are assisted in finding

positions where they can earn enough to help them pay at least a part of their college expenses. The work supplied is of various kinds, the most common being manual labor of one sort or another, although there are at times requests for skilled help. A large number of students earn their board by either waiting on table or washing dishes at boarding houses and fraternities, and many pay for their rooms by taking care of furnaces, cleaning walks, washing windows, etc. In general a student is expected to work three hours a day for his board, and seven to ten hours a week for his room, the latter case being determined by the character and location of the rooms.

A similar endeavor to list the employment open to women is maintained in the office of the Dean of Women. Those desiring employment may consult the Dean of Women upon the adjustment of their class schedules. Students who anticipate earning a considerable proportion of their expenses are urged to submit their plans when making application.

Students are cautioned against undertaking so much outside work as to interfere with their studies, or injure their health. It is generally inadvisable for one to attempt to pay all of his expenses by working at the same time that he is going to college, unless he is willing to take a lighter schedule of studies than the average, and consequently take more time to complete his college course.

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### **GEORGE P. WILLIAMS EMERITUS PROFESSORSHIP FUND**

The University Alumni Association has made contribution for the establishment of the Professor George P. Williams Emeritus Professorship Fund, so named in memory of a former honored professor of Physics in the University.

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### **FELLOWSHIPS, SCHOLARSHIPS, LOAN FUNDS, AND PRIZES\***

Requests for information and applications should be addressed to the following administrative officers: For fellowships, the Dean of the Graduate School; for scholarships, the Dean of the School or College in which the student is enrolled; for loan funds, the Dean of Students.

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\* The most of the funds here mentioned are restricted in use to the College of Literature, Science, and the Arts, and the Graduate School, though some of them are also available in other Colleges of the University.



With the exception of the University Fellowships and Scholarships and the Phillips Scholarships, none of the scholarships and loan funds are open to students in their first year of residence.

### Fellowships

The University has for some years maintained a number of fellowships and scholarships, known as the University Fellowships and Scholarships. These have been open only to students of the Graduate School. (For further details see Graduate School.) The holders for the year 1923-1924 are: Mildred Frances Baxter, A.B., A.M., Psychology; Read Bain, A.B., A.M., Sociology; Arthur Sherman Haddaway, A.B., A.M., History; Wan Liang Hsu, A.B., A.M., History; David Wonchul Lee, A.B., A.M., Astronomy; Kathleen Martha Lynch, A.B., A.M., English; Enoch Ernest Peterson, A.B., A.M., Latin and Greek; Clarence H. Richardson, B.S., M.S., Mathematics; Kathreen Virginia Scudder, A.B., A.M., Romance Languages; Melvin Theodor Solve, A.B., Rhetoric; Gerrit T. VanderLugt, A.B., A.M., Philosophy; Cheng Fu Wang, B.S.E., Aeronautics; Edward Roger Washburn, B.S., M.S., Chemistry.

Fellowships and scholarships, open to graduates of the colleges of the State, have also been maintained. (For further details see Graduate School.) The holders for the year 1923-1924 are: Peter Hugh DeVries, A.B. (Hope College), English; Esther Magdalene Friedrich, A.B. (Alma College), Zoology; Cecil John McLean, B.S. (Michigan Agricultural College), Civil Engineering; Minetta Ernestine B. Nicholai, A.B. (Adrian College), Modern Languages; Marjorie Scaddin, A.B. (Albion College), English; Rufus Kay Wyllys, A.B. (Hillsdale College), History.

In addition there are available for graduate study certain special fellowships supported by friends of the University and usually given for studies in designated fields, as follows:

*Carl Braun Fellowship.* — In December, 1913, Mrs. Elsie L. Braun, of Toledo, Ohio, gave the University the sum of ten thousand dollars, the proceeds of which are to be used for the establishment and maintenance of a fellowship to be known as the Carl Braun Fellowship. The holder for the year 1923-1924 is David Mathias Dennison, A.B., Physics.

*Buhl Classical Fellowship.* — Mrs. Theodore D. Buhl has generously continued the provision made by the late Theodore D. Buhl, of Detroit, for Classical Fellowships for the year 1923-1924. The holder is Herbert McGeoch Telford, A.B., A.M.

*Emma J. Cole Fellowship in Botany.*—In 1910, Miss Emma J. Cole bequeathed to the University the residue of her estate, the proceeds to be used for the establishment of a fellowship in Botany. The holder for the year 1923-1924 is Lewis Edgar Wehmeyer, B.S.

*Angeline Bradford Whittier Fellowships in Botany.*—These Fellowships have been established in memory of his mother by Joseph

Bradford Whittier, of Saginaw. The principal sum of the endowment is four thousand dollars. One fellowship was established for the year 1923-1924, the holder being Dow Vawter Baxter, B.S.F., M.S.F.

*du Pont Fellowship in Chemistry.*—The E. I. du Pont de Nemours and Company has given the University the sum of seven hundred fifty dollars for support of a fellowship in Chemistry for the year 1923-1924. The holder of the fellowship is John Franklin Ross, B.S.(Chem.), M.S.(Chem.).

*National Aniline and Chemical Company Fellowship.*—The National Aniline and Chemical Company has given the University a fellowship of seven hundred fifty dollars for the year 1923-1924. The holder of the fellowship is Leigh Charles Anderson, B.S.(Chem.), M.S.(Chem.). This fellowship is to support studies in Organic Chemistry.

*Charles James Hunt Fellowship.*—In July, 1900, Mr. Charles James Hunt, of Detroit, a graduate of the University of the Class of 1846, and wife, conveyed by deed, to the Board of Regents, in trust, the title to certain pieces of real estate, subject to Mr. Hunt's life-interest in the income to be derived therefrom, and to the life-interests of other persons named in the deed. After the terminations of these life-interests "one or more fellowships in the University of Michigan" are to be established in accordance with conditions named in the deed of trust and in accompanying documents, and are to be known as the Charles James Hunt Fellowships.

*Frederick Stearns and Company Fellowship in Pharmacy.*—In order to promote research in Pharmacy, Frederick Stearns and Company, of Detroit, has contributed the sum of five hundred dollars for a fellowship. The holder of this fellowship for 1923-1924 is Theodore Fredrich Thorsberg, B.S.(Phar.).

*Roy D. Chapin Fellowship in Highway Engineering.*—This fellowship is offered to provide for the investigation of an approved subject relative to hard surfaced roads and pavements. It pays the sum of two hundred fifty dollars per semester or winter period, with an allowance of fifty dollars for expenses. The holder of the fellowship for 1923-1924 is Morey Fraser Macnaughton, B.S.

*Roy D. Chapin Fellowship in Highway Transport.*—This fellowship is offered to provide for the investigation of an approved subject relative to Highway Transport. It pays the sum of two hundred fifty dollars per semester or winter period, with an allowance of fifty dollars for expenses. The holder of the fellowship for 1923-1924 is Arthur William Einstein, B.S.(M.E.).

*Detroit Edison Fellowship in Highway Engineering.*—These fellowships are offered for the investigation of approved subjects relative to moderate cost country roads. Each fellowship pays the sum of

two hundred fifty dollars per semester or winter period, with an allowance of fifty dollars for expenses. The holders of these fellowships for 1923-1924 are Otto Vincent Adams, B.S., and Albert Joseph Bedard, B.S.(C.E.).

*Acme White Lead and Color Works Fellowship.* — The Acme White Lead and Color Works, of Detroit, has since 1911 maintained a fellowship for the study of the scientific principles underlying the successful manufacture of paints and varnishes. This fellowship, renewed for 1923-1924, carries a stipend of seven hundred fifty dollars. The holder is Maurice Van Loo, A.B., M.S.

*United States Radiator Company Fellowship.*—The United States Radiator Company, of Detroit, has continued its fellowship. The annual stipend is five hundred dollars. The fellowship is established for the investigation of problems connected with the application of different forms of radiators, and other heating devices in heating installations. No appointment was made for the year 1923-1924.

*Alice Freeman Palmer Fellowship in History.* — In February, 1919, Professor George H. Palmer, of Harvard University, gave to the University the sum of fifteen thousand dollars for the establishment of a graduate fellowship in History, to be known as the Alice Freeman Palmer Fellowship in History, in memory of his wife, Mrs. Alice Freeman Palmer, of the Class of 1876.

*Trueblood Fellowship Fund.*—In May, 1921, the University Oratorical Association gave to the University an initial sum of two thousand dollars, later to be augmented, for the establishment of a fellowship in Public Speaking, to be named the Trueblood Fellowship Fund, in honor of Professor Thomas Clarkson Trueblood, head of the department of Public Speaking in the University.

*Edwin C. Hinsdale Fellowships.*—By the terms of the will of the late Genevieve S. Hinsdale the University received in October, 1921, property to be used in the support of one or more scholarships or fellowships to be known as the Edwin C. Hinsdale Scholarships of Fellowships, and to be open especially to students in the Museum of Zoölogy. For 1923-1924 three appointments were made, as follows: Frances Naomi Clark, A.B., William James Clench, B.S., M.S., and James Paul Jones, A.B.

*Lawton Fellowship in Astronomy and Mathematics.* — By the terms of the will of the late Francis A. Lawton, the University has received the sum of six thousand dollars for the support of a fellowship in Astronomy or in Mathematics. Preference is always to be given to Astronomy if there be a suitable candidate. The holder of the fellowship for 1923-1924 is Hazel Marie Losh, A.B., A.M., Astronomy.

*Special Fellowship in Sociology.*—A friend of the University, interested in the social problems of a great city, gave the University

the sum of five hundred dollars for establishment during 1923-1924 of a fellowship in Sociology as preparation for enlightened social service. The holder for 1923-1924 is Margaret Wylie, A.B.

*Michigan Gas Association Fellowship.*—In the fall of 1922, the Michigan Gas Association, which before the war had given money for fellowships at the University but had discontinued its gifts, again gave the University money for a fellowship. This fellowship carries a stipend of seven hundred and fifty dollars, with an additional two hundred and fifty dollars for expenses incident to the research undertaken. The holder for 1923-1924 is Howard Glazier Chamberlin, B.S.E.

*Detroit Edison Fellowship in Metallurgy.*—In the fall of 1915, the Detroit Edison Company established at the University a fellowship in Metallurgy, but this fellowship was discontinued during the war. In the fall of 1922, the Company resumed support of it. One thousand dollars is available annually. Of this amount seven hundred dollars is paid to the appointee, the remainder being applied to expenses incident to the research or researches undertaken. The fellowship is for study of problems in Metallurgy relating to power plant construction and operation or the utilization of power. The holder for 1923-1924 is Louis Walter Kempf, B.S.E.

*Sarah Parish Fellowship.*—In 1923 the University received from Mr. Joseph Parish, of Detroit, funds for a fellowship to be a memorial to his wife and to be known as the Sarah Parish Fellowship. The stipend is one thousand dollars. The first award will be made by the Executive Board of the Graduate School in the spring of 1924.

*Pendleton Classical Fellowships.*—In September, 1923, Mrs. Edward W. Pendleton, of Detroit, gave the sum of twenty-four hundred dollars to provide four classical fellowships to be known as the Pendleton Classical Fellowships. In 1923-1924 these fellowships were held by Mary Catherine Garland, A.B., Mary Jeanette Pearl, A.B., A.M., William Merriitt Read, A.B., and Isabel Brodrick Rust, A.B., A.M.

*Frances E. Riggs Foundation.*—In the summer of 1923, Miss Frances E. Riggs, of Detroit, gave the University property with which to maintain one or more fellowships for the benefit of students from the British Isles. Miss Riggs' purpose is to foster understanding and good will between Great Britain and the United States. The stipend is about twelve hundred dollars. The holder of a Frances E. Riggs Fellowship in 1923-1924 is Reginald Ivan Lovell, A.B., University of London.

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### Scholarships

*Phillips Scholarships.* — The late Henry Phillips, Jr., of Philadelphia, Pa., made provision in his will for the establishment and maintenance of six scholarships to be known as the Phillips Scholar-

ships, in the College of Literature, Science, and the Arts of the University of Michigan. By the terms of the will these scholarships are to be given only to candidates for the degree of Bachelor of Arts, who excel in the Greek and Latin studies required for admission to the University; and they are to be awarded by a committee consisting of the President of the University, the Dean of the College, the senior professor of Greek, and the senior professor of Latin.

Of the six scholarships contemplated in the bequest, three have been established, with an income of fifty dollars each. They are awarded to students, otherwise properly qualified, under the following conditions:

(a) Candidates for the Phillips Scholarships shall upon their entrance into the University be examined upon four units of Latin, and the committee in charge may award a scholarship to the student obtaining the highest grade; if more than one paper reaches a satisfactory degree of excellency, more than one scholarship may be awarded at the discretion of the committee.

Only the examination in Latin shall be absolutely required; but any student who has had preparation in two units of Greek may elect to be examined upon them as well as upon four units of Latin. If the combined grade of his examinations in Greek and Latin is equal or superior to the grade of a candidate who presents Latin only, he will be given the preference in the awarding of the scholarships.

(b) The successful candidate or candidates shall be required during the year of tenure to pursue each semester one full course of four hours in Greek and one full course of four hours in Latin.

(c) The scholarship held by any successful candidate may, upon application to the Committee, be renewed for a second year, provided that the applicant has attained in his courses in Latin and Greek a grade not less than B and continues the study of both languages during his second year, to the amount of three hours each per semester.

(d) The Committee in charge of the scholarships shall determine, after considering the merits of the individual case, whether it is more expedient to renew the scholarships for a second year or to award new ones.

(e) The provisions of the will regarding the general character of the candidates shall be observed.

Application for admission to this examination must be made to the Dean of the College on or before October 21.

The holders of these scholarships for the year 1923-1924 are Persis Margaret Cope, Eunice Louise Eichborn, and Elizabeth Holloway McManus.

*Detroit High School Scholarship.* — The alumni of the Detroit High School have established several scholarships open to graduates

of that school. The first steps toward raising a fund for this purpose were taken in 1891; and a corporation has since been formed under the title of the Detroit High School Scholarship Fund Association.\* From four to six students at a time usually enjoy the benefit of the fund. Several of the beneficiaries have received degrees at the University. One of the scholarships is known as the Mary C. Leete Memorial Scholarship, in memory to a teacher who died in 1894.

In July, 1915, a further sum of \$1,300 was given for the establishment of a loan fund open to a graduate of the Detroit Central High School, and to be known as the Charles Frances Adams Memorial Fund, in memory of a teacher who died in 1914.

*Saginaw High School Scholarships.*—Four scholarships, with an annual income of two hundred and fifty dollars each, established by the Honorable Arthur Hill, of Saginaw, W. S., and known as the John Moore, the Wells-Stone, the Alonzo R. Bingham, and the Otto Roeser Scholarships, are open to graduates of the Saginaw, W. S., High School.

The Saginaw, E. S., High School offers several scholarships of varying amounts to deserving graduates of that school. One of these is known as the Heavenrich Brothers & Co.'s Scholarship, and is provided by the mercantile firm of that name. Another, designated as the High School Scholarship, is cared for largely by the High School Lyceum. A third is known as the A. R. Loveland Scholarship. The graduating class of 1900 also made provision for a scholarship to be available every sixth year. These scholarships are all administered as loan funds.

*Grand Rapids High School Scholarships.*—The High School Scholarship Association of Grand Rapids is a body incorporated under the State Law, for the purpose of assisting graduates of the Grand Rapids High School to secure a college education in the College of Literature, Science, and the Arts, or the Colleges of Engineering and Architecture, of the University of Michigan.

*Perry Scholarship Fund.*—The Alumni Association of the Ann Arbor High School, in 1898, established a fund, in memory of Walter Scott Perry, graduate of the University in the Class of 1861, and for twenty-seven years Superintendent of the Ann Arbor schools.

The purpose of the fund is to assist graduates of the school in procuring an education in the College of Literature, Science, and the

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\* The State Legislature in 1893 passed an act providing that "five or more persons of full age residing in the State of Michigan may associate and incorporate themselves together for the purpose of establishing scholarships in the University of Michigan, for the benefit of graduates of the high schools of the State." A corporation organized in accordance with provisions of this act "shall be under the general management of not less than five, or more than fifteen trustees," and "shall, in law and equity, be capable of taking and receiving real and personal estate . . . not exceeding one hundred thousand dollars in the aggregate, for the purpose of its incorporation.

Arts of the University of Michigan. It is administered as a Loan Fund, repayments to be made by beneficiaries under regulations prescribed by the Board of Directors of the High School Alumni Association.

*Seth Harrison Scholarship Fund.*—The Seth Harrison Scholarship Fund was established in memory of her father, by Mrs. Clara Harrison Stranahan, of Brooklyn, N. Y. The principal of the fund was originally twenty-five thousand dollars, but this has been increased by additions from unexpected income. The income is to be used, on conditions specified in the covenant between Mrs. Stranahan and the Board of Regents, for the benefits of descendants of Seth Harrison who may be pursuing studies in the College of Literature, Science, and the Arts of the University of Michigan, whenever applicants properly qualified present themselves. Provision is made, however, for applying the income of the fund to scholarships for other persons, "if at any time there shall be a period of seven years during which there are no qualified applicants," descendants of Seth Harrison. The holders for the year 1923-1924 are Addison Charles Ely, Nathaniel Ely, Seth Harrison Ely, Jeanne Hastings Grover, Helen Harrison Million, Anne Seeley, Clarence Stranahan Tappan, and Emily Ely Woodward.

*Margaret Smith Hunt Scholarships, James B. Hunt Scholarship, and Charles James Hunt Scholarship.*—In July, 1900, Mrs. Margaret Elsie Hunt, of Detroit, a student in the University in the year 1878-1879, conveyed by deed to the Board of Regents, in trust, the title to certain pieces of real estate, subject to Mrs. Hunt's life interest in the income to be derived therefrom. After the termination of this life-interest, "one or more scholarships in the undergraduate course of studies in the Department of Literature, Science, and the Arts," are to be established in accordance with conditions named in the deed of trust and in accompanying documents, and are to be known as the Margaret Smith Hunt Scholarships.

In February, 1902, Mr. and Mrs. Hunt conveyed by deed to the Board of Regents, in trust, the title to a certain other tract of land, subject to Mrs. Hunt's life-interest, in the income to be derived therefrom and to certain other life-interests, and conditions named in the deed. After the termination of these life-interests, and in accordance with conditions named in the deed of trust, and in accompanying documents, a portion of the income derived from the trust is to be devoted to the maintenance of the James B. Hunt Scholarship, so named in memory of the father of Charles James Hunt; a second portion to the maintenance of a scholarship, to be known as the Charles James Hunt Scholarship; and the remainder of the maintenance of Margaret Smith Hunt Scholarships in addition to those previously provided for.

*Joseph A. Bartholomew Scholarship.* — The late Joseph A. Bartholomew bequeathed to the University of Michigan property on the

income of which is to be established a scholarship of the value of five hundred dollars annually.

*The Henry Strong Scholarships.* — The heirs of the late Henry Strong, of Lake Geneva, Wis., have established in memory of their father, three scholarships of the value of two hundred and fifty dollars each. The holders for the year 1923-1924 are Elizabeth Carson, Rowan Fasquelle, Dorothy Jeffrey, Millard Handley Pryor, Elsie Albertine Schuler, and John William Shenefield.

*The James L. Babcock Scholarship Fund.*—The late James L. Babcock, of Ann Arbor, Michigan, bequeathed to the University the sum of five thousand dollars in trust, to be loaned out and kept at interest, said interest to be used annually and perpetually to help educate a worthy young man or worthy young woman, as the case may be. The income known as the James L. Babcock Scholarship Fund, is administered by the President and Secretary of the University and the Professor of Music in the College of Literature, Science, and the Arts; and is awarded each year to a student who is especially interested in music and who desires to elect work in the department of Music. The student selected must, in addition to being especially interested in the subject of music, have attained at least an average standing in other subjects at the University, and if, during any year, no candidate meeting the conditions can be found, the income from the fund is added to the principal.

*Marsh Scholarships.*—In 1916 the late Elia M. Walker bequeathed to the University the sum of ten thousand dollars, the income of which is to be used for the establishment of two or more scholarships named in honor of the donor's parents, John Pitt Marsh and Fanny Ransom Marsh. The holders for the year 1923-1924 are William Frederick Moore and William Huron Stewart.

*Barbour Scholarships.* — In June, 1917, the Hon. Levi L. Barbour, of Detroit, gave to the University the sum of \$100,000 for the establishment of scholarships for women students coming from oriental countries. In January, 1920, Mr. Barbour made a further gift of \$250,000 to this fund. The holders for the year 1923-1924 are E. Tsung Vera Chang, Florence King Chong, Susan Siok-Kheng Chen, Clara Leonora Eastlake, Ai-Mei Giang, Asha Latika Haldar, Yo Kawamura, Fumi Kinai, Yulan Anna Lan, Maria C. Lanzar, Gien Tsin Liu, Hsiao Lu, Cho Ren, Kameyo Sadakata, Toki Sato, Shan Ming Tao, Pearl Beng-Choo Theo, Clara Zoh Yoen Tsao, Yi Fang Wu.

*Albert B. Prescott Scholarship in Organic Chemistry.*—In February, 1921, Mrs. Abigail F. Prescott bequeathed to the University the sum of six thousand dollars for the establishment of a scholarship to be known as the Albert B. Prescott Scholarship in Organic Chemistry, in memory of her husband, the late Albert Benjamin Prescott, long Professor of Chemistry and Dean of the College of Pharmacy in this University.



*John E. Weeks Scholarship Fund for Research Work in Ophthalmology.*—In June, 1921, John E. Weeks, M.D., of the Class of 1871, gave to the University the sum of ten thousand dollars for the founding of a scholarship designated by the Regents of the University the John E. Weeks Scholarship Fund for Research Work in Ophthalmology.

*Lloyd's Register of Shipping Scholarships.*—Lloyd's Register of Shipping has established scholarships at this University, open to students in Marine Engineering and Naval Architecture. The holders for the year 1923-1924 are Christopher Edmund Blaydon and Mark Louis Ireland.

#### Loan Funds\*

*Scholarship of the Class of 1876.*—The Class of 1876 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1881.*—The Class of 1881 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1890.*—The Medical Class of 1890 has established a fund to be administered as a loan fund for students in the Medical School.

*Scholarship of the Class of 1894.*—The Class of 1894 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1897.*—The Class of 1897 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1898.*—The Class of 1898 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1899.*—The Law Class of 1899 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1903.*—The Class of 1903 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1913.*—The Law Class of 1913 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1914.*—The Class of 1914 has established a fund to be administered as a loan fund.

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\* In 1899 an act was passed by the State Legislature containing the following provisions: "Any five or more persons of full age residing in the State of Michigan may associate and incorporate themselves together for the purpose of establishing loan funds for the benefit of school scholars and students of this State, to assist them to attend the University of Michigan" (and other State educational institutions). "All the funds received by any corporation organized under this act shall be used, after paying necessary expenses, for the exclusive purpose or purposes set forth in the articles of association. . . . Such corporations shall in equity and law be capable of taking and receiving real and personal estate . . . not exceeding twenty-five thousand dollars in the aggregate, for the purpose of its incorporation."

*Scholarship of the Class of 1914.*—The Engineering Class of 1914 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1915.*—The Class of 1915 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1915.*—The Engineering Class of 1915 has established a fund to be administered as a loan fund.

*Scholarship of the Class of 1917.*—The Engineering Class of 1917 has established a fund to be administered as a loan fund.

*Lucinda Hinsdale Stone Memorial Scholarship.*—The Michigan State Federation of Women's Clubs has presented to the University the sum of five thousand dollars, as a portion of a fund to be known as the Lucinda Hinsdale Stone Supplementary Loan Scholarship Fund, the income of which is to be administered by the President of the University, the Dean of Women, and a third person of their appointment (who shall be a woman), for the benefit of women who are students in the University. On an average three young women each year have been assisted by the income from this fund.

*W. W. Wedemeyer Scholarship.*—The Class of 1894 established a fund, the income of which is "to be used as a loan fund for the benefit of needy and worthy undergraduates in the Literary Department," on condition that the Board of Regents "shall require of each student or students as may receive the benefit of such fund a promise to repay to said Board the sum loaned on such terms as shall seem to said Board to be reasonable; it being the intention of the donors of said fund that the same shall be kept intact, as far as possible."

In February, 1913, at the request of the donors the fund was named the W. W. Wedemeyer Scholarship Fund, in memory of the late Hon. W. W. Wedemeyer, an honored member of the Class of 1894.

*George P. Morris Scholarship Fund.*—In 1898, friends and teachers established a fund to be administered as a loan fund, in memory of the late George P. Morris, long Professor of Philosophy in the University.

*Students' Lecture Association Fund.*—Under the condition of the gift made to the Board of Regents by the Students' Lecture Association, a small fund is available for loan to students in any school or college of the University. All loans are to be made through a committee consisting of the President of the University, the Dean of the College of Literature, Science, and the Arts, the Dean of the Medical School, and the Dean of the Law School, and they are to be secured by note payable one or more years after the borrower has completed his university course.

*Newton Van Der Veer Loan Fund.*—In January, 1900, the Regents accepted from Mrs. George Wagner a sum of money as the

nucleus of a fund to be known, in memory of her father, as the Newton Van Der Veer Loan Fund; and to be used in loans "to needy students in such amounts and under such conditions as the executive head of the University may deem proper and wise."

*Detroit Collegiate Alumnae Fund.*—In March of 1907 the Detroit Branch of Collegiate Alumnae established a fund for the aid of undergraduate women in the University. This fund is administered as a loan fund under the direction of the Dean of Women and representative of Detroit Alumnae.

*Ann Arbor Collegiate Alumnae Fund.*—The Ann Arbor Branch of the Association of Collegiate Alumnae has established a fund for the aid of undergraduate women in the College of Literature, Science, and the Arts. This fund is administered as a loan fund under the direction of the chairman of the scholarship committee, the president of the Ann Arbor branch, and the Dean of Women.

*Webster Loan Fund.*—In February, 1909, the Regents accepted from Mr. John R. Webster and his son, Mr. John P. Webster, a sum of money for the foundation of a scholarship. It is administered as a loan fund.

*The Alice Freeman Palmer Loan Fund.*—A fund of five thousand dollars has been contributed by the friends of Alice Freeman Palmer, of the Class of 1876, and the State Federation of Women's Clubs and the income of this fund with all accumulations above five thousand dollars may be loaned, in such separate amounts as shall be determined, to women of the Graduate School who present satisfactory credentials.

*Anna M. Chandler Scholarship Fund.*—The Alumni of the Marquette, Michigan, High School have given to the University the sum of one thousand dollars to be known as the Anna M. Chandler Loan Fund, in honor of Miss Anna M. Chandler, A.B., 1874, for thirteen years superintendent of schools of Marquette. The money is administered as a loan fund, preference being given to graduates of the Marquette High School.

*Mortar Board Loan Scholarship Fund.* — In 1911 the Mortar Board Society established a fund, later increased, to be administered as a loan fund for women students.

*Philadelphia Club Loan Fund.*—In 1914 Michigan Alumnae of Philadelphia established a fund to be administered as a loan fund for women students.

*Junior Girls Play Loan Fund.* — The women students of the Classes of 1916 and 1923 established a fund from the proceeds of the Junior Girls Play to be administered as a loan fund for junior and senior women students.

*McGowan Loan Fund.*—In November, 1915, Mrs. Josephine P. McGowan gave to the University the sum of five hundred dollars

for the establishment of a loan fund for needy students in the College of Literature, Science, and the Arts, in memory of her husband, the late Hon. Jonas H. McGowan, Regent of the University from 1870 to 1877.

*John Frank Dodge Loan Fund.*—In November, 1915, Mr. John F. Dodge, of Detroit, gave to the University the sum of \$10,000 for the establishment of a loan fund for worthy juniors and seniors in the College of Engineering.

*F. M. Hamilton Loan Fund.*—In December, 1915, the heirs of the late Francis M. Hamilton, A.B., 1869, of Ann Arbor, gave to the University the sum of one thousand dollars for the establishment of a loan fund.

*Elisa Mosher Loan Fund.*—In April, 1916, the New York Alumnae Association gave to the University the sum of one thousand dollars to establish a loan fund for women of the University in honor of Dr. Elisa Mosher, the first Dean of Women.

*Michigan Daughters of the American Revolution Loan Fund.*—In April, 1916, the Daughters of the American Revolution of the State of Michigan gave to the University money for the establishment of a loan fund for senior women in the College of Literature, Science, and the Arts.

*William James Olcott Scholarships.*—In June, 1916, Mr. William J. Olcott, of Duluth, Minnesota, gave to the University the sum of five thousand dollars for the establishment of a scholarship open to students in the College of Engineering. The amounts awarded, when repaid, shall accumulate towards the foundation of further scholarships.

*Newell and Nancy Eddy Avery Memorial Loan Scholarship Fund.*—A donor who prefers to remain unknown has given to the University the sum of five thousand dollars, the income of which is to be used to establish a loan fund for junior and senior women in the College of Literature, Science, and the Arts.

*Florence Huson Scholarships.*—In 1916 the late Dr. Florence Huson bequeathed to the University the sum of six thousand dollars for the establishment of a scholarship for women students, to be administered as a loan fund.

*Alice Hosmer Preble Scholarship Loan Fund.*—Friends of Dr. Robert B. Preble, of the Class of 1889, and Mrs. Robert B. Preble, of the Class of 1888, have given to the University the sum of \$2,500 for the establishment of a scholarship loan for women students to be known as the Alice Hosmer Preble Scholarship Loan Fund, in memory of and to continue the work of Mrs. Preble.

*The George C. Caron Scholarship Fund.*—In January, 1917, Dr. and Mrs. George C. Caron, of Detroit, gave to the University the sum

of \$2,000 for the establishment of a scholarship in memory of their son, the late George C. Caron, Jr., of the Class of 1914. The beneficiaries are to be seniors giving special attention to journalism or seniors studying Homœopathic medicine. The scholarship is administered as a loan fund.

*The Jane Turner Memorial Loan Fund.*—In 1917, Miss Mary E. Turner, of Detroit, gave to the University the sum of \$5,000 to be used as a loan fund for women students in the University. This fund is named in memory of her sister, the late Jane Owen Turner, a student during the year 1896-1897.

*Richard Nelville Hall Memorial Fund.*—In March, 1917, the parents and friends of Richard Nelville Hall, of Ann Arbor, who lost his life while engaged in the ambulance service in connection with the French Army in Alsace, December 24, 1915, gave to the University the sum of two thousand dollars for the establishment of a loan fund in his memory.

*Educational Loan Fund.*—In June, 1917, an alumnus gave to the University the sum of one hundred dollars to be used as a loan fund for students taking work in education.

*F. J. Barrett Loan Fund.*—In 1917 Mr. F. J. Barrett established a fund to be administered as a loan fund.

*Senior Society Scholarship Loan Fund.*—In 1917 the Senior Society established a fund to be administered as a loan fund for women students in their senior year.

*Educational Loan Fund.*—In 1917 Edward H. Haney gave to the University money for the establishment of a loan fund for deserving students in the School of Education.

*Charles A. Ransom Scholarship Loan Fund.* — In 1919 Mrs. Amanda A. Ransom bequeathed to the University the sum of \$1,500 for the establishment of a loan fund in memory of Charles A. Ransom.

*Chicago Alumnae Association Scholarship Fund.*—In 1918 the Chicago Association of University of Michigan Alumnae established a loan fund for women students.

*Samuel M. Feinberg Memorial Loan Fund.*—In 1919 Mrs. Simeon M. Feinberg and Dr. Olga Pickman Feinberg established a loan fund for seniors in the Medical School in memory of Samuel M. Feinberg.

*Ruth Gentry Loan Fund.*—In 1919 Miss Ruth Gentry bequeathed to the University money for the establishment of a loan fund for women students.

*Marilla Griswold Loan Fund.*—In 1919 Marilla Griswold bequeathed to the University the sum of \$10,000 for the establishment

of a loan fund, preference being given to needy students from Allegan County, Michigan.

*Richard Neville Hall Post No. 422, V. F. W. Loan Fund.*—Richard Neville Hall Post No. 422, V. F. W., has established a fund to be administered as a loan fund.

*Paul Wheeler Warriner Scholarship in Engineering.*—In June, 1920, Eugene C. Warriner, A.B., 1891, A.M., 1912, and his wife, Ellen Wheeler Warriner, A.B., 1891, gave to the University the sum of three hundred dollars as a loan scholarship to be known as the Paul Wheeler Warriner Scholarship in Engineering, in memory of their son, a member of the Class of 1920, who died in Ann Arbor, March 5, 1917.

*George H. Bensenberg Trust Fund.*—In September, 1920, George Henry Brazenburg, C.E., 1867, gave to the University the sum of \$20,000 in Liberty Bonds, the income from which is to be used as a loan fund for worthy and needy students in the College of Engineering.

*Kent Dunlap Hagler Scholarship Fund.*—In December, 1921, Dr. Elmer E. Hagler, of the Medical Class of 1890, and other alumni of Springfield, Illinois, and the vicinity, contributed money for the establishment of a scholarship open to young men from that locality, to be known as the Kent Dunlap Hagler Scholarship Fund, in memory of Dr. Hagler's son who lost his life in the World War.

*United States Army Veteran Scholarships.*—In June, 1920, the Board of Regents established five scholarships, amounting to the remission of University fees, open to honorably discharged soldiers of the United States Army who are recommended by the War Department.

*Nurses' Scholarship Loan Fund.*—In 1921 Dr. Christopher G. Parnall, of the University, and James L. Lee, of Detroit, gave to the University money for the establishment of a loan fund for students in the Nurses' Training School.

*Sarah Caswell Angell Loan Fund.*—In September, 1921, the Sarah Caswell Angell Chapter, Daughters of the American Revolution, of Ann Arbor, gave to the University an initial sum for the establishment of a loan fund for women students in the third or fourth year in the College of Literature, Science, and the Arts, to be known as the Sarah Caswell Angell Loan Fund of the Sarah Caswell Angell Chapter, Daughters of the American Revolution.

*Earhart Loan Fund for University Women.*—In September, 1921, Mrs. Harry B. Earhart, of Ann Arbor, gave to the University one thousand dollars for the establishment of a loan fund for University women.

*Adelia Cheever House Loan Fund.*—In 1922 the residents of Adelia Cheever House established a loan fund for women students residing at the House.

*Alumnæ House Loan Fund.*—In 1922 the Alumnæ Association of Alumnæ House established a loan fund for women students residing in the House.

*Helen Newberry Residence Loan Fund.*—In 1922 members of the Helen Newberry Residence Association established a loan fund for women students living in the Residence.

*Edna Miller Burch Loan Fund.*—In 1922 Mrs. Edna Miller Burch established a loan fund to be administered as a loan fund.

*Cornelius Donovan Scholarship Loan Fund.*—In 1922 Cornelius Donovan bequeathed to the University money for the establishment of a loan fund for students in the College of Engineering.

*The J. B. and Mary H. Davis Trust Fund.* — In April, 1922, Charles B. Davis, of the Engineering Class of 1921, gave to the University the sum of ten thousand dollars for the establishment of a loan fund for the benefit of students of Geodesy and Surveying, in memory of his father, Joseph B. Davis, for many years head of the department mentioned.

*Henry R. Lowrey Loan Fund.* — The late Emma Lowrey bequeathed to the University the sum of six thousand dollars for the establishment of a loan fund for students in the College of Literature, Science, and the Arts.

*Howard H. Servis Loan Fund.*—In August, 1922, Howard H. Servis, of the Law Class of 1908 gave to the University the sum of three hundred dollars for the establishment of a loan fund for students in the Law School.

*Emergency Loan Fund.*—In 1923 Mr. R. Spencer Bishop gave to the University money for the establishment of a loan fund for students from foreign lands.

*Ralph S. Hirth Memorial Loan Fund.* — In 1923 Mrs. Sophia Hirth, in the name of her daughter, Miss Ida Hirth, and herself, gave to the University the sum of \$1,000 for the establishment of a loan fund for students in the Law School in memory of their brother and son, Ralph S. Hirth.

*Caroline Cook Lombard Loan Fund.*—In 1923 friends of the late Mrs. Caroline Cook Lombard established a loan fund for women students, in memory of Mrs. Lombard.

*World War Veterans Memorial Loan Fund.*—In 1923 the World War Veterans' Memorial Committee established a loan fund for students who are honorably discharged ex-service men or women who are able to present at least thirty hours advanced credit.

### Prizes

*Michigan Menorah Society Prize.* — Mr. Julius Rosenwald, of Chicago, Illinois, has given to the University of Michigan an annual sum of one hundred dollars, to be awarded as a prize for an essay by an undergraduate of the University of Michigan, on a topic dealing with the literature, the history, and the achievements of the Jewish people. He has offered this prize with a view of stimulating a general and intelligent interest in a field which promises so well for the disclosing of one of the sources of our modern civilization, the Hebraic, the other being the Hellenistic. The prize is known as the "Michigan Menorah Society Prize," a society organized at the University for the study of Hebraic culture and ideals, which Mr. Rosenwald desires to encourage.

The award is made by a committee of three, appointed by the President of the University, one member, however, to be nominated by the Michigan Menorah Society.

The award is given only for essays showing sufficient merit. In case the judges should conclude that none of the essays presented deserves recognition, the year succeeding two prizes will be offered, each in the sum of one hundred dollars. If two essays should be of equal merit, the judges may divide the prize equally, awarding to each essay the sum of fifty dollars.

*Good Government Club Prize.*—The income of the sum, originally five hundred dollars, which has since grown to twelve hundred dollars, presented to the Board of Regents by the Good Government Club of the University, is available, under the conditions of the gift, in the form of books to be awarded as a prize to that student of the graduating class in the College of Literature, Science, and the Arts who has done the most distinguished work as an undergraduate in the field of political science.

*Eita Krom Prize in Sociology.*—In September, 1923, Mr. and Mrs. Barney Krom, of Iron River, gave to the University the sum of \$1,000 for the establishment of a prize to be awarded annually to the junior or senior student who shall present the best essay on a social problem. This gift is in memory of their daughter, Miss Eita Krom, of the class of 1923, Miss Hinda Ruwitch, of the class of 1923 in the School of Education, and of Miss Leonore Klein and Mr. William Ruwitch, of the class of 1925, who lost their lives in an accident on August 17, 1923.

### GIFTS TO THE UNIVERSITY FOR FELLOWSHIP AND RESEARCH

The cause of education has been advanced in the past and may be in the future through the establishment of fellowships and scholarships. The Regents have felt themselves justified in providing from University funds only a small number of these. Bequests and



other special gifts, however, have from time to time been made, sometimes for studies in particular fields, sometimes without such limitation. The University hopes for similar benefits in the future.

Also for important fields of study the University has adopted a plan of granting to conspicuously qualified instructors and professors relief from teaching for a stated period, constructively "absence on leave," that they may undertake special investigations with a view to important contribution and publication. In carrying out this plan, involving, among other provisions, the appointment of substitutes, money is needed. For this money the University must depend largely on special gifts or endowments.

Gifts for fellowships or for research should be made to "the Regents of the University of Michigan." Friends of the University who contemplate such gifts are invited to correspond with Shirley W. Smith, Secretary of the University.

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## FEES AND EXPENSES

In view of the fact that no variation can be made from the rule that all fees are due and payable in advance for the entire year, no prospective student should come to Ann Arbor for registration without a sum sufficient to cover all his fees for the entire year. Students coming from foreign countries should particularly note this fact.

**ALL FEES MUST BE PAID IN ADVANCE OR AT THE TIME OF REGISTRATION.**—A by-law of the Board of Regents provides that no student or graduate shall be allowed to enjoy the privileges of the University until he has paid all fees that are due. The matriculation and annual fees must be paid in full at the time of registration. The laboratory fees and other special fees are payable at or before the time of enrollment in the class. The graduation fee and the various special diploma fees or certificate fees must be paid before the candidate is recommended by the faculty. Those graduating or taking a special diploma or certificate on Commencement Day must pay the required fee on or before a fixed date preceding Commencement Day, which date will be posted in due season by the Secretary. Holders of fellowships or of scholarships are required to pay the matriculation fee (if not already paid), the annual fees (with certain exceptions in the Graduate School), the graduation fee, laboratory expenses, and other similar charges, the same as other students of the school or college in which their work lies.

**RESIDENCE.**—*The burden of registering under proper residence is placed upon the student; and it is the duty of each student at registration, if there be any possible question of his right to legal residence in Michigan, under the rules of the Regents, to raise the question*

with the registration officer and have such questions passed upon and settled by the proper authority of the University, previous to registration. Residence in Michigan for the purpose of registration shall be determined according to the State constitutional provision governing the residence of electors (See Article III, Sections 1 and 2); that is, no one shall be deemed a resident of Michigan for the purpose of registration in the University of Michigan unless he is a citizen of the United States who has resided in this State six months next preceding the date of his proposed enrollment, and no person shall be deemed to have gained or lost a residence in this State while a student of the University. The residence of minors shall follow that of the legal guardian. The residence of wives shall follow that of the husband. Aliens who have taken out their first citizenship papers and have otherwise met these requirements for residence, shall be regarded as eligible for registration as residents of Michigan. Any student who registers improperly under these rules shall, when discovered, be required to pay not only the proper non-resident fees, but shall be assessed as an addition to the annual fee for that year, the sum of \$10.

**MATRICULATION FEE.** — Every student, before entering a school or college of the University, is required to pay a matriculation fee. This fee, which, for citizens of the United States, legally resident in Michigan, or their wards, is \$10, and for others \$25, is paid but once, and entitles the student to the privileges of permanent membership in the University.

**ANNUAL FEES.**—(See also "Fee for Second Semester.") In addition to the matriculation fee, every student has to pay an annual fee for incidental expenses, and, in some schools or colleges, a small additional fee for special purposes. These fees are paid the first year of residence at the University, and every year of residence thereafter. Resident graduates are required to pay the same annual fee as undergraduates. The annual fees in the several schools and colleges of the University are as stated below. By "Michigan students" is meant those who are citizens of the United States, legally resident in Michigan, or their wards.

**College of Literature, Science, and the Arts:** For Michigan students, \$85 for men, \$80 for women; for all others, \$110 for men, \$105 for women. Students in the College who are pursuing a combined curriculum, and, in consequence, are registered at the same time in one of the professional Schools are required to pay the annual fee due from students in such professional Schools instead of the annual fee of the College of Literature, Science, and the Arts.

**Colleges of Engineering and Architecture:** For Michigan students \$100 for men, \$95 for women; for all others, \$125 for men, \$120 for women.

**Medical School (including laboratory fees):** For Michigan students, \$180 for men, \$175 for women; for all others, \$260 for men,

\$255 for women. The fee required for graduate students who pursue special advanced laboratory courses in this School is, in addition to the ordinary laboratory expenses, ten dollars for each course taken.

Law School: For Michigan students, \$110 for men, \$105 for women; for all others, \$130 for men, \$125 for women.

College of Pharmacy: For Michigan students, \$100 for men, \$95 for women; for all others, \$125 for men, \$120 for women.

College of Dental Surgery: For Michigan students, \$180 for men, \$175 for women; for all others, \$260 for men, \$255 for women. A further charge of \$10 a year is made to cover the cost of certain special supplies provided by the University.

School of Education: For Michigan students, \$85 for men, \$80 for women; for all others, \$110 for men, \$105 for women.

Graduate School: For Michigan students, \$85 for men, \$80 for women; for all others, \$110 for men, \$105 for women. The fee required from graduate students who are granted the privilege of pursuing studies for an advanced degree *in absentia* is \$25 for each year of registration. Regularly appointed holders of fellowships or scholarships in the Graduate School, and members of the Faculty, including Instructors, who are regularly admitted students in the Graduate School are exempt from payment of the usual annual fee.

#### Fee for Part Time Students:

(a) Persons whose occupations are such as to afford them only a limited part of their time for study, but who are duly accredited for admission to any College or School of the University and who also give evidence of an interest in study wholly accordant with the purpose of the College or School to which they are accredited, may be admitted and may elect not more than five hours in any semester upon the payment of an annual fee of \$25.

(b) Such students, if entering the University for the first time, must also pay the usual matriculation fee and they must understand that the part-time fee of \$25 covers only the usual privileges of study and tuition. Michigan Union or Women's League membership, Outdoor Physical Education, and Health Service are not included. These special privileges may be secured by paying the appropriate extra fees at the time of registration.

**SECOND SEMESTER FEE.**—A student who registers at the beginning of the second semester is required to pay 60% of the prescribed annual fee (see refund of fees (g) below).

**LATE REGISTRATION.**—Registration (i. e. enrollment, payment of fees, and classification) must be entirely completed before the first day of the semester. Students failing to complete their registration before the first day of each semester are required to pay a late registration fee of five dollars.

**REFUND OF FEES.**—(a) No student will be entitled to a refund except after the surrender to the Secretary of the University of the student's original receipt from the Treasurer of the University and the surrender of all tickets issued to such student for athletic events not yet having occurred, and, in case of men students, the Michigan Union membership card. Students should scrupulously preserve all receipts.

(b) No refund or reduction of matriculation fee is made except in case of those withdrawing within the first two weeks after registration.

(c) Any student who withdraws not more than two weeks after his registration shall be entitled to a refund of his entire annual fee, together with the matriculation fee.

(d) Any student who withdraws thus more than two weeks and less than eight weeks after his registration is entitled to a refund of one-half his annual fee.

(e) A student who withdraws more than eight weeks after the beginning and not later than the end of the semester of registration is entitled to a refund of 40% of his annual fee.

(f) The 40% refunded to students enrolling at the beginning of the second semester by permitting them to register for 60% of the annual fee shall be included in determining any further refund to withdrawing students under (e) and (f) above.

(g) A student who transfers at the beginning of the second semester from one school or college to another in which the annual fee is higher shall be required to pay an additional amount sufficient to bring the total fee to that in the latter school or college.

(h) A student enrolling during the second semester in a different School or College from that in which he was enrolled during the first semester, shall not be required to pay a total fee in excess of the higher annual fee in these two divisions of the University.

(i) Refunds for Summer Session or short courses will be made pro rata on the basis of the foregoing rules.

**FEE FOR SPECIAL ENTRANCE EXAMINATIONS.**—An applicant for admission to any college of the University who presents himself for the entrance examinations at a date later than announced in the University Catalogue is required to pay the University Treasurer a fee of \$5 before he can receive permission to take the examinations.

**LABORATORY EXPENSES.**—Students who pursue laboratory courses in chemistry or bacteriology are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance are different for the different courses, ranging from \$5 to \$20. The laboratory expenses of the students vary with their prudence and economy. In these laboratories the average expense for each course is \$4.50 per credit hour.

The laboratory deposit must in all cases be paid to the Treasurer of the University before the student may enroll in the class.

**GYMNASIUM EXPENSES.**—A charge of \$2 a year is made for the rental of a locker in either Waterman or Barbour gymnasium.

**GRADUATION FEE.**—The fee for graduation is \$10. The by-laws of the Board of Regents prescribe that no person shall be recommended for a degree until he has paid all dues, including the fee for graduation.

**SPECIAL DIPLOMAS AND CERTIFICATES.** — The fee for the Teacher's Diploma, the Nurse's Diploma, and the Special Certificates in Business Administration, in Journalism, in Geology, and in Geodesy and Surveying is \$2, which must be paid in advance of recommendation.

**FEES FOR SUMMER SESSION.** — (a) In the Colleges in which the session is eight weeks in length a uniform fee of \$32 for men, \$30.50 for women for the session is required of all students. (b) In the Medical School, in which the session is six weeks in length, the fee is \$32 for men, \$30.50 for women, for laboratory and demonstration courses, and \$37 for men, \$35.50 for women for clinical courses. (c) In the Law School a uniform fee of \$39.50 for men, \$38 for women is required. For men students attending the Biological Station, the Geology and Geography Field Courses is \$40; for those attending Camp Davis the fee is \$30.

Fees stated include laboratory fees, excepting that a cash deposit is required to cover the cost of material used and unusual breakage in the laboratories of Chemistry, Hygiene, and Bacteriology. All students are entitled to the privileges of the University Health Service.

**OTHER EXPENSES.**—Expenses for board and room vary considerably with the taste and means of the individual student, and may be regarded as approximating such expenses in cities of similar situation. The annual expenses of students, including clothing and incidentals, are on the average, somewhat over six hundred dollars. The University does not undertake to furnish manual labor to students, yet a number find opportunities in the city for remunerative labor. For further statement concerning student employment see page 116.

There are at present no dormitories for men, and no commons maintained by the University. The Dean of Students maintains a bureau of information regarding rooms and board, and provides other special facilities for men students. Five residence halls for women accommodate about three hundred twenty women. There are also an adequate number of approved houses for women conducted as cottage dormitories. Women students should, in advance of their arrival, communicate with the Dean of Women regarding lodgings. See page 112.

# College of Literature, Science, and the Arts

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The College of Literature, Science, and the Arts owes its name to a provision in the legislative act under which the University was organized in the year 1837, the nomenclature Department being changed to College by the Board of Regents in January, 1915. Its aim is to cover the broad field of general university study of the ancient and modern languages and literatures, of history, philosophy, mathematics, science, and the liberal arts, as distinguished from the more special work of the professional schools in engineering, medicine, law, pharmacy, and dentistry; and it offers a large number of courses of instruction, from which the student is allowed to choose such as he is qualified to pursue.

The Graduate School formerly maintained in connection with this College has been reorganized to include graduate work throughout the University, and is under the direction of a Dean and an Executive Board.

The academic year extends from Tuesday, September 23, 1924, to Monday, June 15, 1925.

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## REQUIREMENTS FOR ADMISSION†

### ADMISSION OF CANDIDATES FOR A DEGREE

[For admission to advanced standing, see page 148.]

[For admission of students not candidates for a degree, see page 149.]

Admission to this College is gained only by examination or by certificate. Applicants for admission must have completed the requirements for admission as here described. Fifteen or more units are required for admission, a unit meaning the equivalent of five recitations a week in one branch of study for one year, amounting

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† It is rarely necessary to come to Ann Arbor for a personal interview. Arrangements for admission can better be made by mail, provided the communications are complete and definite and the credentials are official. Applicants for admission on advanced standing from other colleges or normal schools should address the Dean. Those seeking admission as freshmen should address the Registrar.

in the aggregate to not less than one hundred twenty sixty-minute hours in the clear. Two or three hours of laboratory, drawing, or shop-work will be counted as equivalent to one of recitation.

Students who have attended a university, college, or normal school, in addition to the high school, but who enter this University upon their high school credentials alone, render themselves, upon discovery, liable to the summary cancellation of their registration.

#### ADMISSION ON EXAMINATION

The fifteen units required for admission on examination must all be chosen from Group I, and must include all the prescribed units.

School credits are not accepted in lieu of the examination given by the University. Those earned by taking the examinations of the College Entrance Examination Board and the Regents of the State of New York are so accepted as far as they go.

#### ADMISSION ON CERTIFICATE

Only those applicants are admitted on certificate who are officially recommended graduates of high schools accredited to this University and have completed a full four-year curriculum in a standard high school, covering at least fifteen units.

It is expected that the principal will recommend not all graduates, but only those whose character, ability, application, and scholarship are so clearly superior that the school is willing to stand sponsor for their success at the University. The grade required for recommendation should be distinctly higher than that for graduation.

The principals of approved schools are urged to send directly to the Admission Officer of the College concerned, immediately upon the close of the school year, the recommendation (upon the blank furnished by the University) of each graduate intending to enter the College at the beginning of the ensuing year. The address of the applicant, the College desired, and all other data asked for are to be entered on this blank. If, on inspection, the data and recommendation are found satisfactory, the Admission Officer will forward to the applicant a certificate entitling him to admission without examination. This certificate is to be presented in person at the time of registration.

The fifteen or more units required for admission on certificate must include twelve or more units from Group I, and must contain as a minimum five units regularly scheduled for the third and fourth years of the high-school curriculum. The inclusion of six or more such units is urgently recommended. Those who enter with less than five advanced units, will be required to pursue throughout their freshmen year a third continuation or major high-school subject.\*

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\* For the definition of a continuation study see the rules governing first year elections (page 156).

## Prescribed Units

Applicants for admission to the College of Literature, Science, and the Arts must present the following prescribed units:

English .....	3
Foreign Languages, any one.....	2
(Greek, Latin, French, German, or Spanish)	
Algebra .....	1
Geometry .....	1
Laboratory Science, any one.....	1
(Physics, Chemistry, Botany, or Zoölogy)	

Plan B. Graduates of schools on the approved list of the North Central Association of Colleges and Secondary Schools, and of other schools especially approved by reason of the results of inspection and the success of their graduates at the University, may be admitted without one or more of the foregoing prescribed units. All such students, however, will be required to pursue throughout their freshman year a third continuation or major high-school subject.

By action of the Faculty and the Board of Regents, Plan B is abolished on and after March 1, 1925.

## Pre-Medical and Pre-Dental Requirements

Applicants who intend later to study Medicine or Dental Surgery should offer two units of Latin and one unit each of Physics and Chemistry. Inasmuch as these preparatory subjects are demanded for admission to these professional schools, students who enter College without them will ordinarily need to attend one or more summer sessions in addition to the regular terms of residence prescribed. They are strongly urged to present French or German, Botany, and Zoölogy.

## SUBJECTS ACCEPTED FOR ADMISSION

The subjects from which choice may be made, and the number of units which will be accepted in each subject are as follows:

## Group I

(Twelve units must be chosen from this group.)

English, 3 or 4 units.	Trigonometry, $\frac{1}{2}$ unit.
Greek, 2 or 3 units.	Physics, 1 unit.
Latin, 2, 3, or 4 units.	Chemistry, 1 unit.
French, 2, 3, or 4 units.	Botany, $\frac{1}{2}$ or 1 unit.
German, 2, 3, or 4 units.	Zoölogy, $\frac{1}{2}$ or 1 unit.
Spanish, 2, 3, or 4 units.	Physiology, $\frac{1}{2}$ unit.
History, 1, 2, or 3 units.	Introductory Science, $\frac{1}{2}$ or 1 unit.
Economics, $\frac{1}{2}$ unit.	Geography and Geology, $\frac{1}{2}$ , 1,
Algebra, 1, $1\frac{1}{2}$ , or 2 units.	or $1\frac{1}{2}$ units.
Geometry, 1 or $1\frac{1}{2}$ units.	



### Group II

(Three units may be chosen from this group.)

Group II comprises any subjects not listed in Group I which are counted toward graduation by the accredited high school from which the applicant receives his diploma.

### Six-Year High Schools

In June, 1914, the following resolutions relative to six-year high schools and the admission of graduates from such schools were adopted by the Faculty of the College and approved by the Board of Regents. Until the requirements shall have been more explicitly formulated, they will be administered in the spirit of these resolutions:

Resolved: 1. That school authorities be encouraged to incorporate the seventh and eighth grades of the elementary schools as an integral part of the high school, forming a six-year system;

2. That school authorities be recommended to organize the six-year high school system into a Junior high school of three years and a Senior high school of three years as soon as local conditions will admit;

3. That graduates of six-year high school courses be required to gain during the last three years at least eight of the fifteen units required for admission, two of which units shall be obtained during the senior year;

4. That graduates of six-year high school courses be permitted to apply for university credit *on examination*.

### SCOPE OF PREPARATORY WORK

When one or more units are offered for admission in any subject, the work done in that subject should have been of such a character as to qualify the student to pursue it in the University as a continuation study.

A descriptive outline indicating the amount of preparation expected in each of the subjects named will be found in a bulletin issued to high-school authorities.

**OTHER SUBJECTS.**—In addition to the subjects listed under Group I, other subjects recognized by the high school as counting toward graduation will be accepted to a maximum of three units. Among these subjects are the following:

Agriculture,	Manual and Industrial Training,
Commercial Branches,	Music,
Domestic Art and Science,	Normal Training Courses,
Drawing,	Public Speaking.

### ADMISSION ON EXAMINATION

Applicants for admission who are not entitled to enter on diploma (see page 140) must take the entrance examinations in the

entire fifteen units. They should register with the officer in charge of the examinations.

The applicant may divide the examination, taking one part either a year or a semester before the date of his admission, and the second part at the time of admission. But if he fail to secure the requisite number of units within the specified time he forfeits all credits for the subjects he may have passed.

The examination in the several subjects will be in writing and will be held in Tappan Hall in accordance with the schedules given below. Applicants presenting themselves too late for the scheduled examinations are required to pay an examination fee of five dollars.

The College conducts the examinations for admission to all colleges of the University. Examinations in those subjects accepted by other colleges, but not by this, will be provided for on application to the Registrar.

**SCHEDULE OF EXAMINATIONS FOR ADMISSION,  
SEPTEMBER, 1924**

	Monday Sept. 15	Tuesday Sept. 16	Wednesday Sept. 17	Thursday Sept. 18	Friday Sept. 19
8-11		Geometry	Algebra	History	English Composition
1-3:30	English Literature	Physics	Greek German	French Spanish	Botany
3:30-6	Zoology	Physiography Geology	Latin Physiology	Trigonometry Introductory Science	Chemistry Astronomy

**SCHEDULE OF EXAMINATIONS FOR ADMISSION,  
FEBRUARY AND JULY, 1925**

	Thursday, Feb. 5	Friday, Feb. 6	Saturday, Feb. 7
8-10	English Composition	Algebra Trigonometry	Geometry
10-12	Botany	Physiography Geology	Chemistry
2-4	History	Physics Introductory Science	Latin Greek
4-6	Physiology	French German Spanish	English Literature Zoology

All examinations are held in Room 203, Tappan Hall, or in another room announced by the Registrar.

In 1925-1926 these examinations will be held September 14 to 18, 1925, February 4 to 6, 1926, and June 24 to 26, 1926, respectively.

### ACCREDITED SCHOOLS

The privilege of sending pupils for admission on diploma is limited to schools that have been approved by the Faculty. On request of the proper authorities, the Faculty sends an officer of the University to visit a school and report upon its condition. If satisfied from the report of this officer that the school is taught by competent instructors, and is furnishing a good preparation to meet the requirements for admission, described on pages 139 to 141, the Faculty places the school on the approved list for a period not exceeding three years (inclusive of the year of visitation); reserving, however, the right to require another inspection if, within the period specified in each case, important changes affecting the course of study in the school, or the efficiency of the instruction, seem to make an examination necessary. Requests for inspection should be addressed to the High School Inspector, University of Michigan, Ann Arbor.

It is not the practice of the University to inspect secondary schools outside the state of Michigan. However, it is the policy of the University to give a school outside of Michigan the same status as that enjoyed with its own state university. Questions concerning the diploma privileges of schools outside of Michigan should be addressed to the Registrar of the University.

The list of schools in Michigan accredited to the University for the year 1923-1924 is given below.

Addison	Bay City, Holy Rosary Academy
*Adrian	" " St. James Academy
Alba	Bear Lake
*Albion	*Belding
Algonac	Bellaire
*Allegan	Belleville
*Alma	Bellevue
*Alpena	*Benton Harbor
Alpha	Benzonia
Amasa	Bergland
*Ann Arbor	*Berrien Springs
" " St. Thomas' School	" " Emmanuel College
Arcadia	*Bessemer
Athens	Big Rapids
Bad Axe	*Big Rapids
Bangor	" " Ferris Institute
Baraga	*Birmingham
Barryton	Blissfield
*Battle Creek	Bloomington
*Bay City, Central	*Boysie City
" " St. Mary's School	Breckenridge

\* Schools marked by the asterisk are also accredited by the North Central Association of Colleges and Secondary Schools.

Bridgeman	Detroit, Our Lady of Help
Britton	* " Sacred Heart Seminary
Bronson	" St. Agnes
Brown Ctiy	" St. Joseph
Buchanan	" St. Leo
Buckley Rural	" St. Theresa
*Cadillac	" St. Vincent
Caledonia	* " Southeastern
*Calumet	* " Southwestern
Camden	* " Univ. of Detroit Prep.
Caro	* " University School
Carson City	* " Western
Carsonville	Dexter
Cass City	*Dollar Bay
Cassopolis	*Dowagiac
Cedar Springs	Dryden
Centerville	Dundee
Central Lake	Durand
Champion	*East Jordan
Charlevoix	*East Lansing
*Charlotte	East Tawas
Chassel	Eaton Rapids
*Cheboygan	Eau Claire
Chelsea	Edmore
Chesaning	Elk Rapids
Clare	Elsie
Clarkston	*Escanaba
Clinton	Evart
Clio	Ewen
*Coldwater	Farmington
Coloma	Pennville
Colon	Fenton
Concord	*Ferndale, Lincoln School
Constantine	*Flint
Coopersville	" St. Michael
Corunna	Flushing
Covert	Fowlerville
*Croswell	Frankfort
*Crystal Falls	*Fremont
Dansville	Gagetown
Davison	Galesburg
Dearborn	Gaylord
Decatur	*Gladstone
Deckerville	Gladwin
Deerfield	Gobleville
De Tour	Goodrich
Detroit, All Saints	Grand Blanc
" Annunciation	*Grand Haven
" Blessed Sacrament	" Akeley Hall
* " Cass	*Grand Ledge
" Cathedral H. S.	Grand Marias
" Central	Grand Rapids, Catholic H. School
" Central, Evening	for Boys
* " Eastern	" " Catholic H. School
" Felician Sisters Sem.	for Girls
" Holy Redeemer	* " " Central
" Holy Rosary	" " Christian H. School
* " Hudson School	* " " John Calvin Col.
" Liggett School	Prep.
* " Northern	" " Mt. Mercy Academy
* " Northeastern	" " Sacred Heart
* " Northwestern	Academy

- Grand Rapids, South Union
- " " "
- Grandville
- Grant
- Grass Lake
- Grayling
- Greenland
- Greenville
- Grosse Isle
- Gwinn
- Hamtramck
- Hancock
  - " Suomi Coll. Acad.
- Harbor Beach
- Harbor Springs
- Harrisville
- Hart
- Hartford
- Hartland
- Haslett
- Hastings
- Hesperia
- Highland Park
- Hillsdale
- Holland
  - " Hope College Prep.
- Holly
- Homer
- Hopkins
- Houghton
- Howard City
- Howell
- Hudson
- Imlay City
- Ionia
- Iron Mountain
- Iron River
- Ironwood
  - " St. Ambrose
- Ishpeming
- Ithaca
- Jackson
  - " St. John's School
  - " St. Mary's School
- Jonesville
- Kalamazoo
  - " Normal H. S.
  - " Nazareth Academy
- Kalkaska
- Kent City
- Laingsburg
- Lake City
- Lake Linden
- Lake Odessa
- Lake View
- L'Anse
- Larsing
  - " St. Mary's
- Lapeer
- Lawrence
- Lawton
- Leslie
- Linden
- Lowell
- Ludington
  - " St. Simon's School
- Mancelona
- Manchester
- Manistee
- Manistique
- Manton
- Marcellus
- Marine City
- Marion
- Marlette
- Marquette
  - " Normal High School
- Marshall
- Martin
- Marysville
- Mason
- Mattawan
- Memphis
- Mendon
- Menominee
- Mesick
- Michigamme
- Midland
- Milac
- Millford
- Millington
- Monroe
  - " St. Mary's Academy
- Montague
- Montgomery
- Morenci
- Morrice
- Mt. Clemens
  - " " St. Mary's
- Mt. Morris
- Mt. Pleasant
  - " " Normal Preparatory
  - " " Sacred Heart Acad.
- Munising
- Muskegon
  - " St. Mary's
- Muskegon Heights
- Nashville
- National Mine
- Negaunee
- New Baltimore
- Newberry
- Newaygo
- Niles
- North Adams
- North Branch
- Northville
- Norway
- Okemos
- Olivet
- Onaway
- Onsted
- Ontonagon
- Orchard Lake, St. Mary's

Orion	Sault Ste. Marie
Ortonville	" " " Loretto Academy
Oscoda	Schoolcraft
*Otsego	Scottville
Ovid	Sebewaing
*Owosso	Shelby
Oxford	Shepherd
*Painesdale	*South Haven
*Paw Paw	South Lyon
Pellston	Sparta
Pentwater	Spring Arbor Academy
*Perry	Springport
Petersburg	*Stambaugh
*Petoskey	Standish
Pickford	Stanton
Pigeon	Stephenson
Pinckney	Stockbridge
Pittsford	*Sturgis
*Plainwell	Sutton's Bay
*Plymouth	Tawas City
*Pontiac	*Tecumseh
*Port Huron	Tekonsha
*Portland	Three Oaks
Quincy	*Three Rivers
Rapid River	*Traverse City
Ravenna	" " St. Francis' School
Reading	Trenary
Redford	Trenton
Reed City	Trout Creek
Republic	Uby
Richland	Union City
Richmond	Utica
*River Rouge	Vassar
" " Our Lady of Lourdes	Vermontville
Rochester	Vicksburg
Rockford	Vulcan
Kockland	*Wakefield
Rogers	Waldron
Romeo	Walled Lake
*Royal Oak	Watersmeet
*Saginaw, Arthur Hill	Watervliet
" " East Side	Wayland
" " St. Andrew's	Wayne
" " St. Mary's School	Webberville
" " SS. Peter & Paul's Sch.	West Branch
St. Charles	White Pigeon
St. Clair	Whitehall
St. Ignace	Williamston
*St. Johns	*Wyandotte
*St. Joseph	" " St. Theresa
St. Louis	" " St. Patrick
Saline	Yale
Sand Creek	*Ypsilanti
Sandusky	" " Normal College H. S.
	*Zeeland

### PROVISIONAL ADMISSION

An applicant for admission either on examination or certificate, who presents fifteen units from the lists on pages 140 and 141 but who is deficient in not more than two of the twelve units from Group I, may be admitted provisionally; but these deficiencies must

be made up during the first year of residence. No student who has an admission deficiency outstanding at the beginning of his second year of residence will be allowed to enter his classes until such deficiency is removed.

Only those applicants will be admitted who present not less than fifteen acceptable units and who are entirely recommended.

#### ADMISSION TO ADVANCED STANDING

A. No advanced credit is granted for subjects studied in the high school unless the student has taken a post-graduate course of at least one semester. Advanced credit is granted only for studies equivalent to courses offered in the University, and in accordance with the following conditions:

Either the applicant must pass a satisfactory examination in the work presented; or he must, during the first year of residence in the University, creditably complete, in the department of study concerned, a course presupposing a satisfactory knowledge of the work for which credit is asked.

Such students may apply for advanced standing by presenting to the Registrar on October 18, (or, if they enter at the beginning of the second semester, on March 2) a statement showing the amount of work done in the subjects in which credit is asked. The Registrar will thereupon furnish a blank form for presentation to the professors in charge of the several subjects designated in the blank, who will determine the amount of credit to which the applicant is entitled in accordance with one of the foregoing methods. Credits must be secured and returned to the Registrar as early as the first of November (or, if the student enter at the beginning of the second semester, as early as the fifteenth of March).

B. A student who brings a certificate of standing from an approved college or university, showing that he has satisfactorily completed at least one year of the curriculum of the institution from which he comes, may be admitted without examination to advanced standing in this College. A graduate of one of the stronger courses of an approved normal school, who brings an official certificate explicitly describing the extent and character of his work, may be given, without examination, such advanced standing as is justified by the courses he has completed.

The certificates above referred to must be in the form of an official transcript of record accompanied by a letter of honorable dismissal, and should be presented to the Dean of the College by mail and preferably before September 13.

All advanced credits shall be subject to revision at the end of the first year of residence.

C. Students presenting credits from an approved junior college, who have fully satisfied the requirements for admission to this College, both quantitative and qualitative, will receive the advanced credit to which they are entitled. The procedure is the same as described in Section B.

### **Junior Colleges**

The regulations governing the accrediting of junior colleges in the State of Michigan are as follows:

1. The teaching force shall, as nearly as present conditions permit, possess the qualifications demanded of its instructors by the University. The teachers should be specialists in their subjects. As a minimum preparation, they should have supplemented approximately twenty-five semester hours of undergraduate work in their special subjects with at least a year of graduate study in a university of recognized standing. This preparation ought, as rapidly as circumstances permit, to be raised to include the doctor's degree.

Furthermore, all instructors should have had at least two years experience in teaching in either a high school or a college.

No instructor should teach more than sixteen hours of class work, or its equivalent. In cases where instructors are required to teach high school courses in addition to junior college courses, the total number of teaching hours should not exceed twenty hours per week. It is imperative that the instructor have leisure for study and development.

No instructor should be permitted to teach subjects outside his field of specialization. (If he teaches in the high school, he might there teach in an allied field.)

2. The library and laboratories available for the departments offering junior college instruction should be kept up to a standard approved by the University committee of inspection provided for in the next section.

3. Upon the request of any junior college which desires to be accredited, the Dean of this College will appoint a committee to make an official inspection. This committee shall visit the junior college in question, shall attend classes, examine library and laboratory equipment, and make a written report stating the conditions which obtain, and recommending the acceptance or rejection of the application.

After a junior college has been put on the accredited list of the University, it shall be similarly inspected at least every two years. If at any time a committee of inspection reports that conditions in a given junior college have become unsatisfactory, the University may refuse to accept students from that college one year after notification to the college that it has failed to meet requirements.

### **ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE**

Persons who wish to pursue studies in the College without becoming candidates for a degree may be admitted under the following conditions:



A. Persons over twenty-one and under twenty-five years of age, not provided for in Section B, may be admitted if they present satisfactory credentials, showing their preparation for academic work, and pass entrance examinations in nine units chosen from those accepted for entrance (see page 141). Certificates will not be accepted in place of these examinations. The nine units must include three units in English and one unit in Algebra. Before the beginning of the third year of residence, such students must make up the remaining units required for admission to regular standing.

B. Persons over twenty-one years of age who have taught two years in schools of grammar or high school grade, and all persons over twenty-five years of age may be admitted, provided they pass an examination in English, and show that they are qualified to pursue profitably the studies that they may desire to take up. In this examination in English, applicants will be asked to write brief essays on subjects that will be assigned, and to answer questions on the rudiments of English Grammar. The examination will be held at 8 a. m. Friday, September 19, 1924.

Should a student thus admitted subsequently become a candidate for graduation, he must pass all the examinations for admission required of such a candidate, at least one year before the time when he proposes to graduate.

Such students who wish credit for studies pursued before admission are referred to the rules relating to advanced standing given above.

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## REQUIREMENTS FOR GRADUATION

### Bachelor of Arts

The degree of Bachelor of Arts is conferred upon students who have earned one hundred twenty hours of credit (together with one hundred twenty points\*) in accordance with the following requirements:

(N.B. The requirements for graduation in February, 1925, and thereafter, are changed so as to read, "One hundred twenty, or more, hours, and at least as many points as hours.")

1. The credit must include Courses 1 and 2 in Rhetoric, which must be taken in the first year of residence.

2. In addition to the required courses in Rhetoric, the credit must include at least twelve hours from each of the following three groups, to be taken by the end of the third year of residence. (In the case of students who enter with advanced credit, or in other ex-

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\* For the definitions and significance of grades and points see rule 4, page 156.

ceptional cases, the requirement that the group electives must be taken before the end of the third year may be waived upon application to the Advisory Committee, through the Dean).

Group I: Ancient Languages and Literatures, Modern Languages and Literatures, Rhetoric (other than Courses 1 and 2).

Group II. Mathematics, Astronomy, Physics, Chemistry, Mineralogy, Geology, Zoölogy, Botany, Psychology.

Group III: History, Political Economy and Sociology, Political Science, Philosophy, Geography. For the present, also, Education will be considered as belonging to Group III.

3. To complete the one hundred twenty hours required for graduation, the student may select from the work offered in the announcement of the College of Literature, Science, and the Arts, such courses as he is qualified to pursue subject only to the rules which follow:

a. Not more than eighty hours of elective studies may be taken in any one of the three groups specified above.

b. Not more than forty hours may be elected in any one department of study (as for example, Greek, Philosophy, Mathematics, History, etc.). In the department of Economics, however, a maximum of sixty hours may be elected; provided that not more than forty hours may be taken in any one of the subdivisions, Political Economy, Sociology, and Business Administration. In the department of Romance Languages also a maximum of sixty hours may be elected; provided that not more than forty hours may be taken in any one of the languages falling within that department.

c. At least two-thirds of the work taken in residence beyond the Sophomore year, must be in courses not open to first year students.

d. Every student, in December of his senior year, will receive from the Registrar an official statement of verification of his record.

### **Bachelor of Science**

A student who has otherwise completed the requirements for the degree of Bachelor of Arts and has earned at least sixty of these one hundred twenty hours in mathematics and the physical and biological sciences, may, at his option, receive the degree of Bachelor of Science, instead of Bachelor of Arts.

### **Bachelor of Science in Chemistry**

The degree of Bachelor of Science in Chemistry is conferred upon students who have earned one hundred twenty hours of credit (together with one hundred twenty points) including the prescribed program of studies to be found on page 188.

### **Bachelor of Science in Forestry**

The degree of Bachelor of Science in Forestry is conferred upon students who have earned one hundred twenty hours of credit (together with one hundred twenty points) including the prescribed program of studies given on page 194.

### **Bachelor of Science in Medicine**

The degree of Bachelor of Science in Medicine is conferred upon those students who have completed the requirements for the degree of Bachelor of Arts and the first and second year of Medicine upon the Combined Curriculum. See page 164.

### **Residence**

No candidate will be recommended for the bachelor's degree who has been in residence at this University, registered solely in the College of Literature, Science, and the Arts, less than one academic year and who has earned while in residence here less than thirty hours of credit selected from courses offered in this College.

Of the last thirty hours of the one hundred twenty required for graduation (or of the Literary portion of the Combined Curricula) at least twenty-four hours must be earned in exclusive residence in this College of the University.

For a matriculated student regularly enrolled in this College a Summer Session will be considered as equivalent to one-half a semester's residence. Summer Sessions taken prior to matriculation and University (of Michigan) Extension courses yield credit towards graduation, but do not count toward the minimum residence requirement.

### **Second Bachelor's Degree**

Graduates from the College of Literature, Science, and the Arts of this University who subsequently become candidates for a second bachelor's degree from this College are required, in addition to the credit they already possess, to complete thirty hours (with thirty points) and to satisfy the senior residence rule and the specific requirements for the degree.

### **Degrees with Distinction**

Special distinction, to be recorded on the diploma, may be earned under the following conditions:

a. Students who have at graduation a total number of points greater by 165 than the number of hours earned in residence shall be graduated "with high distinction." In other words, in order to gain high distinction, the student must earn at least 45 hours of A grade, while the remainder of his work done in residence must average B grade.

b. Students who have at graduation a total number of points greater by 135 than the number of hours earned in residence shall be graduated "with distinction." In other words, in order to gain distinction, the student must earn at least 15 hours of A grade, while the remainder of his work done in residence must average B grade.

c. Students who have at graduation a total number of points greater by 120 than the number of hours earned in residence, and who, because of consistently good work in a subject, receive the recommendation of the department, may, by vote of the Faculty, be graduated with special mention in that subject.

#### Attendance at Commencement

Only those who are present in person or who are especially excused by the Dean may receive their diplomas on Commencement Day. Others who have satisfied all the requirements for graduation, including the payment of the graduation fee, will receive their degrees at a subsequent meeting of the Board of Regents.

#### Graduation Fee

The graduation fee of ten dollars must be paid to the Treasurer of the University at least twenty-five days prior to the date of graduation. The same rule applies to the fee for the Teacher's Diploma; candidates for the Teacher's Diploma must have been enrolled with the Head of the Department of Education for a like period.

The same rule applies also to the fee for the Special Certificates in Business Administration, Journalism, and Geology.

### REGISTRATION

A. All undergraduate students in the College of Literature, Science, and the Arts are required, at the beginning of each year of residence, to enroll with the Registrar, to pay their fees to the Treasurer, and to file with the officer hereafter to be designated an election blank properly filled out, showing the courses they expect to pursue during the semester. These three things shall be considered as constituting Registration in this College.

All students entering this College for the first time must present their credentials to the Dean or Registrar and secure from him an admission card before enrolling with the Registrar. This should be done preferably by mail and at least one week prior to the beginning of the registration period.

B. Students may register at any time on or after Tuesday, September 16, 1924, up to and including Monday preceding the opening day. *On and after the first day of the semester, Tuesday, September 23*, students may register only upon payment of an additional fee of \$5.00.

Freshmen are required to register not later than Saturday, September 20, in order that their classification may be completed before classes begin.

C. The election blanks of all Freshmen must be presented in person to the Committee on Freshmen Elections. The election blanks of all sophomores must be presented to the Committee on Sophomore Elections. The election blanks of all Juniors and Seniors must be presented to the Registrar. No credit is given for courses not properly elected. No student is allowed to elect merely a part of a course.

*Freshman Elections.*—Rhetoric 1 and 2 must be taken the first year of residence, unless for exceptional reasons a postponement is allowed by the Committee on Elections. All women in their first year of residence, whether entering as freshmen or on advanced standing, are required to attend a course of lectures given by Miss Jean Hamilton, Dean of Women. This course is described on page 315. In addition to the work in Rhetoric, students having less than thirty hours of credit are expected to elect each semester three of the following courses, making a total of fifteen hours a week. At least one of the major subjects of high school study other than English must be pursued throughout the freshman year as a continuation study.

Greek, 1, 2 (or A, B).  
Latin, 1 or 1A, 2 (or A, B).

French, 1, 2 (or 3, 4).

Spanish, 1, 2 (or 3, 4).

German, 1, 2 (or 3, 4).

History, 1, 2 (or 1A, 2A, or 1B, 2B).

Geography, 1, 2.

Mathematics, 1, 2 (or 1E, 2E, or C,) 1E.

Physics, 1, 2.

Chemistry, 1, 2 (or 2B, 3A).

Botany, 1, or 1A.

Zoölogy, 1.

Geology, 1, 2.

If a student has credit, either toward admission or toward graduation, for first year foreign language, he may elect the work of the second year. If his credit includes second year language, he may elect the work of the third year.

All courses in Geography fall under Group III of the requirements for graduation, while the courses in Geology fall under Group II. The beginning courses in both Geography and Geology may not be elected during the same year.

Botany 1 and Zoölogy 1 should be elected in consecutive semesters, and may be taken in either order.

No course which is a repetition of a unit accepted for admission may be taken for credit in the University.

Courses taken by freshmen the first semester must be continued throughout the second semester.

In no case may courses not on this list be elected by first-year students without the permission of the Committee on Elections. The committee may be consulted between 9 a. m. and 5 p. m. daily, from Tuesday, September 16, to Monday, September 22, in the Auditorium of University Hall.

D. All sophomores are required to submit their election blanks to the Committee on Sophomore Elections, who will be in session

throughout registration week on the second floor of University Hall in a room to be announced.

Juniors and seniors, before making their elections, are recommended to consult the Committee of Upperclass Advisers, who may be found throughout registration week on the second floor of University Hall in a room to be announced.

E. *Number of Hours Allowed.*—In accordance with the provisions of the foregoing rule, first-year students are required to take fifteen hours a week. For all except first-year students the maximum number of hours a week that may be elected without special permission is sixteen, the minimum, twelve. The time necessary to earn the degree may also be materially shortened by attendance upon the Summer Session.

On special request students of superior scholarship may be granted additional hours, but in all cases such requests must be made each semester in writing on a blank form provided by the Registrar, and must be filed with the regular election blank, on which the elections should be made as if the request had been granted. No student will be granted permission to elect extra hours who is in his first semester of residence, or who in the preceding semester received a grade of D, or earned less than one and one-half times as many points as hours.

All requests for permission to take less than the minimum number of hours must be made in writing, stating the proposed election and the reasons therefor, and must be filed with the regular election blank, on which the election should be made as if the request had been granted.

F. Every student is required to file with the same officers, at a stated time in January, an election blank, showing the studies he expects to pursue during the second semester. Election blanks presented after this date will be acceptable only upon payment of \$1.00. This fee may, in exceptional cases, be remitted.

G. Unavoidable changes in election may be made during the first week of the semester, by filing with the proper authority a revised election blank on Thursday or Friday of that week. Such changes can be made only after consultation with the appropriate Committee on Elections.

H. After the first week changes may be made only by permission of the Administrative Board and upon the payment of a fee of \$1.00. This fee may be remitted only by the Administrative Board. Such requests for permission to take up or drop studies must be made in writing on specially provided blank forms and in accordance with the rules printed thereon. Membership in the class does not cease until permission to drop the course has been granted by the Administrative Board (as represented by the Assistant Dean) and notice sent to the instructor. Authority to grant permission to drop, take up, or change courses has not been delegated to the instructors.

Save under extraordinary circumstances, courses dropped after the middle of the semester (Thanksgiving or the Spring recess) will be regarded with the grade E. No courses may be taken up after the sixth week of the semester.

**CONSULTATION HOURS.** — Throughout the period of registration, September 16 to 22, 1924, representatives of all the different departments will keep consultation hours to advise upper-class students, both new and old, regarding the work of the department. Further announcement of the time (usually 10 to 12 daily) and place will be found at the head of the description of courses.

### **MEETING FOR FIRST YEAR WOMEN**

All freshmen women are required to report at Barbour Gymnasium Wednesday, September 24, at 4 p. m., to receive general instruction from the Dean of Women and the Physical Director.

### **ADVISORY SYSTEM**

General information may be obtained from the Committee of Faculty Advisers, who may be found in the Auditorium of University Hall throughout registration week and later at times and places to be announced. Students are urged to make this relation real and vital, and to consult their advisers freely whenever occasion arises. Information concerning rules and their interpretation should be obtained from the Assistant Dean and the Registrar, who are also glad to advise with students on other matters.

### **RULES RELATING TO EXAMINATIONS AND MARKS**

1. A final examination is given in every course in accordance with the schedule issued each semester. No examination may be held except as announced in this schedule, and no date of examination may be changed without special vote of the Faculty.

2. Students are required to take the examination in all courses except such as they may have dropped with consent of the Administrative Board.

3. Students are in no case examined at any other time than that set for the examination of the class in which the work has been done. In case of unavoidable conflicts a special examination during examination week may be arranged by the instructor with the consent of the Committee on Schedule.

4. The final semester reports are made in accordance with the following system of marking: A, excellent; B, good; C, fair; D, deficient, passed without points; E, not passed; I, incomplete; X, absent from examination. These reports are not given out to the students by the instructors, but are regularly issued from the office of the Registrar.

Each hour of credit is valued in points as follows: A, three points; B, two points; C, one point; D, no points; E, no hours credit and no points. All advanced credit is regarded as of grade C for those purposes for which C average is required.

This system of grades and points took effect in June, 1912. Each hour credit earned prior to that date is reckoned as of grade C for those purposes for which C average is required.

5. The grade of D is an unsatisfactory mark. While it gives hours credit, it gives no points, which are equally required for graduation. It is considered as a deficiency. Like the other grades, it is final, and cannot be raised by subsequent work or examination.

6. If a student is reported E in any course, he can receive no credit for that course unless it has again been elected and pursued as though it had not been elected before.

7. A student may be reported Incomplete, if some small portion of his work remains unfinished, providing his standing in the course has been of grade C or higher. To secure credit, this work must be completed within one month after the beginning of the following semester; otherwise the course will be recorded as of grade E.

Any student who desires to remove an Incomplete must first obtain from the Registrar a blank form for presentation to the instructor in charge of the course. This blank, when signed, must be filed with the Registrar within one week from the time of the examination. A fee of \$1.00 is charged for blanks obtained after the specified time.

7. A student reported Absent from Examination may, on presenting a satisfactory excuse, receive permission from the Administrative Board to take the examination within one month after the beginning of the following semester. In case such a supplementary examination be not taken and passed, the course will be recorded as of grade E.

Any student who desires to take an examination from which he was absent at the regular time and with satisfactory excuse must first obtain from the Registrar a blank form for presentation to the instructor in charge of the course. This blank, when signed, must be filed with the Registrar within one week from the time of the examination. A fee of \$1.00 is charged for blanks obtained after the specified time.

9. Students of other schools and colleges who absent themselves from the courses elected in this College forfeit the privilege of electing courses in this College.

### TRANSCRIPTS OF RECORDS

Students wishing statements of credits in order to transfer from this College to another, or for other purposes, should make early and seasonable application for the same. No such statements will be



made out during the busy periods of examination and registration, September 10 to October 10, February 1 to March 1, and June 1 to July 1.

### **RULE RELATING TO LABORATORY COURSES**

No credit is given for laboratory courses until all laboratory charges are paid, and in all cases where such charges are not paid within two weeks after the close of the semester in which the work was taken, a fine of \$1.00 is imposed before credit is given. All regular laboratory deposits are payable in advance.

This report of grade withheld is treated as an incomplete. In order to secure credit for the course, the student must, within one month after the beginning of the following semester, procure from the Registrar a blank, to be returned to him as soon as signed by the instructor. After two weeks from the close of the semester, this blank will be issued only upon presentation of the receipt of the Treasurer of the University for the \$1.00 fine.

### **RULE RELATING TO DEFICIENCIES IN ENGLISH**

Any instructor who finds the written work of a student seriously defective in its English is expected to report the case, together with specimen papers, to a committee consisting of the Assistant Dean and the Professor of Rhetoric, who shall have power to require additional work in composition without credit.

### **RULES RELATING TO DELINQUENTS**

1. *Warning.*—A student whose work is unsatisfactory is warned. In all such cases notice of the character of the work is sent to the student and to his parents or guardian.

2. *Probation.*—A student whose work is extremely unsatisfactory is put on probation. This means that he is in imminent danger of dismissal from the University. During the period of probation the student is on trial to prove his fitness to do work in the University. He is required to devote all his time to his studies.

3. Any student renders himself liable to suspension for a breach of discipline who, while upon probation, engages in any public exhibition, contest, game, or other public University activity.

### **RULES GOVERNING PARTICIPATION IN PUBLIC ACTIVITIES**

For the rules governing participation in public activities see page 115.

### **RULES RELATING TO ABSENCE**

1. All absences should be explained to the Committee on Attendance within one week. Every absence not explained within two weeks will be marked unexcused.

2. Each absence on the day immediately preceding or following a vacation or holiday shall be counted as three.
3. Excessive absence shall render the student liable to a reduction in general credit for the semester.
4. Willful disregard of summons from the Attendance Committee or the Dean shall render the offender liable to suspension.

## **PHYSICAL TRAINING FOR MEN**

### **The Waterman Gymnasium**

Waterman Gymnasium, named in honor of the late Joshua W. Waterman, of Detroit, who contributed largely to its cost, affords excellent opportunity for all phases of gymnastic and indoor athletic activities. The main floor is a rectangle 246 by 90 feet, with truncated corners, allowing, if desired, a 75-yard straight-away sprinting track. There is also a dirt pit for jumping and shot-putting, covered by a trap-door when not in use, as well as an equipment of the various kinds of apparatus usually found in the best modern gymnasiums. Several smaller rooms are devoted to administration, fencing, boxing, and other special purposes, while the basement is given up to baths, lockers, handball, and shot-put. The main hall is lighted in the daytime through a large skylight sixty-six feet above the floor, and in the evening by electricity. A gallery makes room for an elliptical running track, ten laps to the mile.

### **Physical Examinations and Grouping**

Every student entering the University is required to take a medical and physical examination before paying the University fees. A chart of physical tests and measurements is furnished to each student, which not only affords a comparison of his own measurements with those of the average student, thus revealing any abnormality for correction, but also gives him a knowledge of exercise to pursue in order to secure an all around physical development.

As a further result of this examination, all freshmen are classified in groups A, B, C, D, E for the required work in physical training:

**GROUP A.** — Students specializing in major sports during the active practice periods and transferred to the regular classes when these sports are out of season;

**GROUP B.**—Students who have passed the selective physical efficiency test and may elect any desirable activity under supervision;

**GROUP C.**—Students registered in the regular classes;

**GROUP D.**—Students registered in corrective classes which meet at the regular class hours but do corrective postural work;

**GROUP E.** — Students registered for individual corrective work and doing prescribed exercises according to their particular needs.

### Requirements

**GYMNASIUM CLASS ACTIVITIES.**—A minimum of two periods per week is required of all freshmen in the College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, and the College of Pharmacy. No credit in semester hours towards graduation is given for this work. Classes begin the third week in October and continue until the Spring Recess, after which time the work is selective for either outdoor or indoor activities. Students are required to report to the Director of the Gymnasium during the first two weeks in October to make assignments for class sections.

The important objectives of the work are as follows: Good health, improvement in physical efficiency, harmonious development of the body, good posture or body mechanics, the creation of habits for exercise which will continue in after life. Special attention is given to arm, chest, and abdominal exercises, since the development of these parts of the body is below normal in a great majority of those examined. To secure interest, however, the work is varied and consists of athletic exercises, games, and sports, as well as the general developmental work in physical training.

**TRANSFERS TO ATHLETIC SQUADS.**—While entirely free selection is not permitted, students having the needed ability and enthusiasm are encouraged to try out for major and minor sport teams during the active practice periods. No one is transferred, however, unless his name appears on the regular squad list of the athletic coach in charge. On the cessation of this activity, or if for any reason his name is dropped from the list, the student reports immediately to his regular class. These sports are as follows: Football, basketball, baseball, track, cross country, hockey, boxing, wrestling, swimming, gymnastics.

**INTRAMURAL ACTIVITIES.** — Students are encouraged to take part in organized competitive athletics. All those playing on intramural teams are excused from regular class work on the days of actual scheduled contests (not for practice), providing their attendance is approved by the intramural department.

**SELECTIVE ACTIVITIES.** — Students classified in this group may fulfill the requirements in physical education by passing the following tests, after which they may select any supervised activity on reporting to the office of the Director of the Gymnasium two periods per week and also the last week of the first semester. He must reach the following standards in the physical efficiency tests:

(1) Chinning (1 trial)	11 times
Fifty yards dash (1 trial)	6 2-5 seconds
Rope climbing—20 feet (1 trial)	11 seconds
Running high jump (3 trials)	4 feet, 4 inches
Baseball throw (3 throws)	10 points
Gymnastic test (1 trial)	12 points

- (2) Ability in close order to cover the school of the soldier and school of the squad. This test is given to determine posture, alertness, and precision.
- (3) Ability in boxing and wrestling. A practical knowledge of five blows in boxing with guards or five good wrestling holds with breaks. A satisfactory boxing and wrestling bout of two minutes.
- (4) A practical knowledge of three of the following games (those which develop ruggedness and those that may be played in after life): Football, baseball, basketball, handball, tennis, volleyball, golf, squash, raquets.

**PERMANENT EXCUSES.**—In exceptional cases those having physical disability or those having completed an equivalent amount of work in this or another university may secure permanent excuse from the requirement when approved by the Dean of the College or the Director of the Gymnasium.

**ABSENCES.** — All unexcused absences must be made up. All excuses for absence must be presented to the Director of the Gymnasium for approval.

**COSTUME.** — The regulation suit required of all students is a sleeveless shirt, white running pants, and white tennis shoes. Suits must be kept clean. All clothing should be marked with name and initials.

**LOCKERS.** — Each student taking work in the gymnasium must have his own locker. A locker fee of \$2.00 is required for the year; locker tickets must be procured from the Treasurer of the University. Lockers must be in good order at all times. Equipment should be kept clean; loaning or borrowing should be avoided, in order to preserve personal cleanliness. Lockers should be kept carefully locked.

**HOURS.** — The gymnasium is open daily (except Sunday) from 7:00 a. m. to 6:15 p. m. During the seasons for intramural competition the gymnasium is kept open until 10:00 p. m. In vacations the hours are from 7:00 a. m. to 5:30 p. m. The gymnasium is closed on regular University holidays. The office is open from 10 to 12 and 2 to 5 daily except Saturday and Sunday.

**LECTURES ON HYGIENE.**—Six lectures are given during the first two weeks of the college year, attendance on which is required. These are more fully described elsewhere.

#### **Dexter M. Ferry Athletic Field**

By the generosity of Mr. Dexter M. Ferry, of Detroit, an addition of about twenty-five acres has been made to the grounds formerly known as Regents' Field. The combined tract of thirty-five acres lies a few minutes' walk southward from the campus, and is

set apart and equipped especially for open-air sports. It contains the new Yost Field House, a club house, stadia, gridiron, diamond, tennis courts, and tracks for intercollegiate athletics, and similar grounds for interclass and intramural sports.

Anticipating the growth of interclass athletics and the consequent necessity for additional field space, the Athletic Association has purchased thirty-eight and seven-tenths acres of land immediately adjoining Ferry Field on the south.

### Supervision of Athletic Sports

The general supervision of athletic sports is vested in a Board of Control consisting of eleven members. The Board thus constituted has charge of all matters involving the relation of athletic sports to the University; for example, the eligibility of players proposed for any University team, the arrangement of intercollegiate games, the granting of leaves of absence, and the investigation of charges of misconduct on the part of players. The policy of the Board is to foster the spirit of honor and gentlemanliness in athletics, to suppress evil tendencies, and to see that play shall not encroach too much upon the claims of work. For the furtherance of these ends certain specific rules and regulations have been adopted, a copy of which can be had on application to the Secretary of the University.

## PHYSICAL EDUCATION FOR WOMEN

### The Barbour Gymnasium

The Barbour Gymnasium is named in honor of the Honorable Levi L. Barbour, of Detroit, a former Regent of the University and a liberal contributor to the funds for its erection. The building contains, in addition to the gymnasium proper, the offices of the Dean of Women and the Director of the Gymnasium; a club room and parlors for the college women, a hall (Sarah Caswell Angell Hall), accommodating 550 people, for lectures, meetings, theatrical entertainments, etc. The gymnasium is a large room with floor space 90 x 80 feet, well lighted, well ventilated, and amply equipped with the necessary apparatus for individual and class work. The gallery has a running track 310 feet long. The basement contains dressing rooms, shower baths, and a swimming tank which is open to all women registered in the gymnasium. Before beginning the gymnasium work each student receives a careful medical and physical examination, and the work is assigned accordingly. If a girl is physically unable to undertake the general class work she is given individual work carefully adapted to her own need. Especial attention is given to the correction of faulty posture and any deformity that may be benefited by intelligent exercise. Tennis, baseball, team games, hockey, archery, and cross country walks form part of the fall and spring work.

### Palmer Field

Palmer Field, the athletic field for women, was purchased with a fund composed of a very generous gift from the late Honorable Thomas W. Palmer, of Detroit, and of contributions from the Women's League and the alumnae of the University, and consists of a tract of land, comprising seven and one-quarter acres, situated within five minutes walk from the gymnasium. Baseball diamonds, tennis courts, a hockey field, and an archery range provide opportunity for individual and interclass sports.

### Class Work

All freshman and sophomore women students in the College of Literature, Science, and the Arts and freshman women in the Colleges of Engineering and Architecture are required to complete satisfactorily, without credit in semester hours, a course in Physical Education in accordance with the outline stated below. The gymnastic work announced for freshmen and sophomores is a regular academic requirement, and as such is subject to the usual regulations in regard to absence and quality of work.

All freshman and sophomore women students are given a careful medical and physical examination. Other students taking work in this department are required to have a heart and lung test each year.

A regulation costume is required. Owing to the necessity of uniformity, they should *not* be purchased before entering college.

Every student is required to purchase a locker ticket from the Treasurer of the University before taking part in any courses offered in this department.

Freshmen and sophomores are required to include one of the following sections when arranging their academic schedules:

Freshmen sections, at 10, 11, 2, *M, F*; 3, *Tu, Th*.

Sophomore sections, at 3, *M, F*; 10, 11, 2, *Tu, Th*.

A. Required work:—For all freshmen and sophomores.

- I. Fall and Spring work consists of elective sports: archery, baseball, basketball, hockey, and tennis.
- II. Winter work, from November 10, approximately, until Spring vacation, consists of practical gymnastics, corrective gymnastics, and light gymnastics. Students are placed in these classes in accordance with the results of their medical examination. Hours for corrective and light gymnastics to be arranged.
- III. Hygiene lectures. All freshmen and entering sophomore students are required to attend a course of lectures on personal hygiene.

**B. Elective work:—**

- I. Advanced gymnastics. Open to students who have completed the required work in this University or in another institution of collegiate grade. Two hours a week. Hours to be arranged.
- II. Dancing. Beginning and advanced classes. Hours to be arranged.
- III. Sports:—
  - a. Outdoor. Archery, baseball, basketball, hockey, and tennis. Hours to be arranged.
  - b. Indoor. Basketball and swimming. Each two hours. Hours to be arranged.
- IV. Playground course. A normal course including lectures and practical work in folk dances and games. Practice teaching in the public schools during the Spring term is required of all who enter this course. Not open to freshmen. Because of the nature of the course, it will not be given unless thirty-five students are enrolled. Two hours a week during the second semester. Hours to be arranged.

**MILITARY SCIENCE AND TACTICS**

The courses offered in the Coast Artillery Unit and in the Infantry Unit of the Reserved Officers' Training Corps are open to election by students in the College of Literature, Science, and the Arts. A detailed statement regarding the nature of the courses is given on page 97. They must be elected at the same time and in the same manner as courses in any other subject.

**COMBINED CURRICULA IN LETTERS AND MEDICINE****A.B. and M.D.\***

Students desiring to obtain the degrees of Bachelor of Arts in the College of Literature Science, and the Arts, and of Doctor of Medicine in the Medical School, may, by enrolling on the Combined Curriculum in Letters and Medicine, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the Univer-

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\* All students entering upon the Combined Curriculum must satisfy fully the requirements for admission to the College of Literature, Science, and the Arts. They must present two units of Latin and should also present Plane Trigonometry, Physics, and Chemistry. Otherwise an attendance upon one Summer Session will ordinarily be necessary in addition to the residence herein prescribed. It is also advisable that French or German, Botany, and Zoology be included in the high school course.

sity maintain a uniform record of good† scholarship. The work is done under the direction of a Committee of five members representing the college and school. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Arts who has been a student in the College of Literature, Science, and the Arts for at least one year, and has 90 or more hours to his credit, of which at least 30 hours have been earned in the College of Literature, Science, and the Arts of this University, may enroll upon the combined curriculum; that is, while continuing his registration in this college he may also register in the Medical School, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirement described in the following paragraphs.

All students who desire to enter upon the Combined Curriculum in Letters and Medicine must, before April 20 of the year preceding double registration, file with the Registrar, upon a blank to be obtained from him, a petition to be granted that privilege. After this date applications will be received only upon presentation of a satisfactory excuse for the delay and payment of a fee of \$5.00.

When the student so registered in the college or school has completed the first year of the medical curriculum, and not less than 90 hours in the College of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided he has completed the requirements for graduation from the latter college (see page 150) and provided his work has included the following courses, and satisfied the group requirements:

Rhetoric, 6 hours, including Courses 1 and 2.

French and German, 16 hours of either one, and 8 hours of the other. (Each unit of French or German offered in the preparatory work reduces by four hours the requirement in that language. One year of foreign language, however, must be taken in College.)

English, 6 hours.

Electives from Group III, 12 hours, unless excused in part by the Committee.

Psychology, 6 hours.

Physics, 8 hours, including two hours of laboratory work, (not including Physics Z, which is a prerequisite, as is also plane trigonometry).

Chemistry, general, qualitative, and organic, 12 hours for students presenting Chemistry for entrance, otherwise 16 hours.

Zoölogy, 10 hours.

Botany, 4 hours.

Total, 90 hours.

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† The applicant will be expected to have earned at least one and one-third times as many points as hours.



Suggested electives: Latin or Elementary Greek, 8 hours; History, or Political Economy, or Philosophy, 8 hours; Qualitative Analysis, 4 hours; Organic Chemistry, 5 hours; Physical Chemistry, 4 hours.

**B.S. (in Med.) and M.D.**

Students who so desire, may obtain the degrees of Bachelor of Science in Medicine and Doctor of Medicine in six calendar years by complying with the requirements above set forth except that they must complete the first and second years of the Medical Curriculum, and that the credit required from the College of Literature, Science, and the Arts instead of 90 hours, shall be 75 hours, of which at least 67 hours\* must be completed before they may enter upon the combined curriculum, and shall include the following course, and satisfy the group requirements:

Rhetoric, 6 hours, including Courses 1 and 2.

French or German, 16 hours of one. (Each unit of French or German offered in the preparatory work reduces by 4 hours the requirement in that language. One year of foreign language, however, must be taken in College.)

Electives from Group III, 12 hours.

Physics, 8 hours, including two hours of laboratory work, (not including Physics Z, which is a prerequisite, as is also plane trigonometry).

Chemistry, general, qualitative, and organic, 12 hours for students presenting Chemistry for entrance, otherwise 16 hours.

Zoölogy, 4 hours.

Botany, 4 hours.

Total, 75 hours.

The completion of this curriculum will ordinarily require two and one-half years or two years and two summer sessions, in the College of Literature, Science, and the Arts. Students whose scholarship is sufficiently high may apply for permission to elect a limited number of extra hours.

Electives are suggested from the courses before mentioned.

General chemistry, qualitative analysis, and organic chemistry must be elected in the order named. All students should complete general chemistry in the first year; those presenting chemistry for entrance are advised to take both general chemistry and qualitative analysis the first year, enabling them to elect organic chemistry the first semester of the second year.

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\* In 1926, and thereafter, students must have completed the entire 75 hours of collegiate work before entering upon the combined curriculum leading to the degrees of Bachelor of Science in Medicine and Doctor of Medicine. Thus in general these students should attend the two Summer Sessions following the freshman and sophomore years.

**COMBINED CURRICULUM IN LETTERS AND LAW**

Students desiring to obtain the degrees of Bachelor of Arts in the College of Literature, Science, and the Arts, and of Bachelor of Laws in the Law School, may, by enrolling on the Combined Curriculum in Letters and Law, shorten from seven years to six the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the University maintain a uniform record of good scholarship.\* The work is under the direction of a joint committee of five members, representing the college and school. With the consent of the committee in charge, a candidate for the degree of Bachelor of Arts, who has been a student in the College of Literature, Science, and the Arts for at least one year, and has 92 or more hours to his credit, of which at least 30 hours have been earned in the College of Literature, Science, and the Arts of this University, may enroll on the combined curriculum; that is, while continuing his registration in this college he may also register in the Law School, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirement described in the following paragraphs.

All students who desire to enter upon the Combined Curriculum must, before April 20 of the year preceding double registration, file with the Registrar, on a blank to be obtained from him, a petition to be granted that privilege. After this date applications will be received only upon presentation of satisfactory excuse for the delay and payment of a fee of \$5.00.

When the student so registered in the college and school has completed the first year of the law curriculum and not less than ninety-two hours in the College of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided he has completed the requirements for graduation from the latter College (see page 150), and provided his work has included the following courses and satisfied the group requirements:

Rhetoric, 12 hours, including Courses 1, 2, 3 and 4.

Latin, or French, German, or Spanish, 8 hours.

English Literature, 6 hours.

English History, 1a and 2a or 3 and 4.

Mathematics, or a science including laboratory work, 8 hours.

Electives from Group II, 4 hours.

Total, 92 hours.

Latin is strongly urged as desirable for every student preparing to study Law.

In addition to the required courses, the student is advised to elect at least forty hours from the following subjects:

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\* The applicant will be expected to have earned at least one and one-third times as many points as hours.

Latin or Elementary Greek, 8 hours, Courses 3 and 4; French, German, or Spanish, 16 hours; History, 14 hours, including Courses 14 and 15; Political Science, 12 hours; Economics, 16 hours, including Courses 1, 6, 9, 9a, 15 and 38; Philosophy, 7 hours, including Logic, or Psychology, and Political Philosophy or Ethics; Mathematics, 2 hours, Course 51; Public Speaking, 4 hours.

## TWO YEAR PROGRAM

### PRELIMINARY TO THE STUDY OF LAW

The following program in the College of Literature, Science, and the Arts is suggested by the Faculty of the Law School for students looking to the study of law who are unable to devote more than two years to collegiate preparation:

#### FIRST YEAR

Rhetoric, Courses 1, 2.	History, Courses 1a, 2a.
Latin, Courses 1, 2.	Mathematics, Courses 1, 2.

#### SECOND YEAR

Rhetoric, Courses 3, 4.	History, Courses 14, 15.
Latin, Courses 3, 4.	Economics, Courses 1, 2.
English Literature, 6 hours.	Philosophy, Course 9 (Logic).
Political Science, Courses 1, 2.	Public Speaking, Courses 1, 2.

All students in the College of Literature, Science, and the Arts, who contemplate the study of law, are urged to select as far as possible from the program outlined above. Those who wish to elect work in oratory and debating should take this work before entering the Law School. The substitution of a modern language for Latin may be made in the case of students whose preliminary work has not included the necessary preparation, though students of law are strongly advised to include Latin in the curriculum.

## COMBINED CURRICULUM IN LETTERS AND DENTAL SURGERY

Students desiring to obtain the degrees of Bachelor of Arts in the College of Literature, Science, and the Arts, and of Doctor of Dental Surgery in the College of Dental Surgery, may, by enrolling on the Combined Curriculum in Letters and Dental Surgery, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the University maintain a uniform record of good scholarship.\* The work is under the direction of a Committee of five members representing the two colleges. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Arts, who has been

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\* The applicant will be expected to have earned at least one and one-third times as many points as hours.

a student in the College of Literature, Science, and the Arts, for at least one year, and has 90 or more hours of credit, of which at least 30 hours have been earned in the College of Literature, Science, and the Arts of this University, may enroll upon the combined curriculum; that is, while continuing his registration in this college he may also register in the College of Dental Surgery, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirements described in the following paragraphs.

Students who desire to enter upon the Combined Curriculum in Letters and Dental Surgery must, before April 20 of the year preceding double registration, file with the Registrar, on a blank to be obtained from him, a petition to be granted the privilege. After this date applications will be received only upon presentation of a satisfactory excuse for the delay and payment of a fee of \$5.00.

When the student so registered in the two colleges has completed the first year of the dental curriculum, and not less than 90 hours in the College of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided he has completed the requirements for graduation from the latter college (see page 150), and provided his work has included the following courses, and satisfied the group requirements:

Rhetoric, 6 hours, including Courses 1 and 2.

French and German, 16 hours of either one. (Each unit of French or German offered in the preparatory work reduces by 4 hours the requirement in that language. One year of foreign language must, however, be taken in College.)

English, 6 hours.

History, 8 hours.

Electives from Group III, 4 hours.

Chemistry, general, qualitative, and organic. 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.

Zoölogy, 6 hours.

Botany, 4 hours.

Total, 90 hours.

Suggested electives: Latin or Greek, 8 hours; Philosophy, 3 hours; Physical Chemistry, 3 hours.

### COMBINED CURRICULUM IN LETTERS AND NURSING

Students who so desire, may obtain the degree of Bachelor of Science in the College of Literature, Science, and the Arts, and the Nurse's diploma, from the Training School for Nurses, by enrolling on the Combined Curriculum in Letters and Nursing. This privilege is open only to students, who throughout their residence in the University maintain a uniform record of good scholarship.\* The work

\* The applicant will be expected to have earned at least one and one-third times as many points as hours.

is under the direction of a joint committee of five members, representing the college and school. With the consent of the committee in charge a candidate for the degree of Bachelor of Science, who has been a student in the College of Literature, Science, and the Arts for at least one year, and has 90 or more hours to her credit, of which at least 30 hours have been earned in the College of Literature, Science, and the Arts of this University, may enroll on the combined curriculum; that is, while continuing her registration in this college she may also register in the Training School for Nurses, provided the work she has already completed includes a sufficient number of the courses enumerated below to enable her to complete within one year the specific requirement described in the following paragraphs.

All students who desire to enter upon the Combined Curriculum must, before April 20 of the year preceding double registration, file with the Registrar, on a blank to be obtained from him, a petition to be granted that privilege. After this date applications will be received only upon presentation of a satisfactory excuse for the delay any payment of a fee of \$5.00.

When a student so registered in the college and school has completed the two years of the prescribed curriculum in Nursing and not less than ninety hours in the College of Literature, Science, and the Arts, she will be recommended for the degree of Bachelor of Science, providing she has completed the requirements for graduation from the latter College (see page 150), and provided her work has included the following courses, and satisfied the group requirements:

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
	HOURS		HOURS
Rhetoric 1	3	Rhetoric 2	3
Chemistry 1	4	Chemistry 2	4
Recommended Electives:		Zoölogy 1	4
History 1	4		
Botany 1	4	History 2	4
Foreign Language	4	Foreign Language	4
Total	15	Total	15
SECOND YEAR			
Rhetoric 3	3	Rhetoric 4	3
Chemistry 3a	4	Chemistry 10	4
Zoölogy 9	5	Zoölogy 11	4
Recommended Electives:			
Physics 1	4	Physics 2	4
Foreign Language	4	Foreign Language	4
Total	16	Total	16

HOURS	THIRD YEAR	HOURS
English 1	3	English 2 3
Sociology 19	4	Sociology 29 2
Psychology 8a	3	Bacteriology 2 5
Philosophy 1	3	
Recommended Electives:		
Public Speaking 1	3	Psychology 8b 3
	—	Psychology 28 2
Total	16	Hygiene 1 3
		—
	Total	16

FOURTH YEAR

Elementary Nursing; Elementary Materia Medica; History of Nursing and Nursing Ethics; Application of Nursing Principles by Demonstration and Practice; Nutrition and Foods; Hygiene.

FIFTH YEAR

Pediatric Nursing; Nursing in Contagious Diseases; Symptomology; Materia Medica. Orthopedic Nursing; Urinalysis; Nursing Principles.

Throughout the fourth and fifth years practical work is given in the University Hospital coordinately with the theoretical instruction, so arranged as not to interfere with successful pursuit of the studies which the College accepts in lieu of the usual work of the senior college year.

**SUGGESTED PROGRAMS IN THE CLASSICAL LANGUAGES AND IN LATIN OR GREEK AND MODERN LANGUAGE**

The division of subjects among the years of the college course indicated below is desirable, but not mandatory. The number of hours mentioned is the number to be elected each semester.

Candidates for the Teacher's Diploma should elect Course 7 in Psychology (General Psychology), in the second year, eight hours of Education in the third year, and seven in the fourth year. Otherwise the work of the fourth year is wholly elective. The group requirements for graduation should be completed by the end of the third year.

CLASSICAL PROGRAM

FIRST YEAR	HOURS	SECOND YEAR	HOURS
Greek	4	Greek	3 or 4
Latin	4	Latin	3 or 4
Mathematics, or a Laboratory Science	4	History (preferably Greek and Roman, or other third group subjects	3 or 4
Rhetoric	3		
	THIRD YEAR		
	Greek	2 or 3	
	Latin	2 or 4	
	Third Language	4	

**\*LATIN—MODERN LANGUAGE PROGRAM**

FIRST YEAR		SECOND YEAR	
	HOURS		HOURS
Latin	4	Latin	3 or 4
Modern Language	4	Modern Language	3 or 4
Mathematics, or a Laboratory Science	4	History (preferably Greek and Roman), or other	
Rhetoric	3	third group subjects	3 or 4
THIRD YEAR			
Latin		2 or 4	
Modern Language		2 or 4	
Third Language		4	

**SUGGESTED PROGRAMS FOR STUDENTS SPECIALLY  
INTERESTED IN THE STUDY OF FOREIGN  
LANGUAGES****Freshman Year**

Two foreign languages, 8 hours (Greek, Latin, French, Spanish, or German). *a*

Mathematics, or a Science (Biology, Chemistry, Physics, or Physiography), 4 hours.

Rhetoric, 3 hours.

All freshman subjects continue throughout the year.

**Sophomore Year**

Two foreign languages continued, 8 hours, each semester.

Third foreign language begun, 4 hours, each semester. *b*

Philosophy 7 (Psychology), 3 hours, and Zoölogy 3, 1 hour first semester, and Philosophy 1, 3 hours, second semester, *c*; or

Mathematics, or English, or Science, or History (General, or English, or Ancient), 4 hours throughout the year.

**Junior Year**

Languages of main interest, 5 or 6 hours each semester.

Third group requirement, 4 or 5 hours, each semester, chosen from Political Science, 1 and 2, Philosophy, History, or Sociology.

Other electives, 2 hours each semester.

**Senior Year**

Major language work should not exceed 6 hours each semester.

Minor language work should not exceed 4 hours each semester.

Other electives, 6 or more hours, each semester.

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\* The Latin-Modern Language Program may be converted into a Greek-Modern Language Program by the substitution of Greek for Latin wherever it occurs in the above program.

### Notes

a. Continuation of one or both of the languages studied in the high school is recommended; two new languages should not be begun in the same year.

b. Students specially interested in the study of Latin are recommended to begin Greek at this time, if it has not been taken previously; those presenting four units of Latin and two of Greek for admission are advised to continue both Latin and Greek in the first year, begin German or French in the first semester of the second year, and begin French or German in the first semester of the third year.

c. The student should complete the second group requirement during the year, by electing Psychology; candidates for the Teacher's Diploma will at the same time be meeting one of the requirements for that diploma.

d. Candidates for the Teacher's Diploma should elect 6 or more hours in the department of Education during the year. The third group requirements must be completed during the year.

e. Candidates for the Teacher's Diploma will elect enough hours in the department of Education to complete the requirements of fifteen hours.

## CURRICULA IN JOURNALISM

### Requirements for Admission

The curricula in journalism are open to all students regularly enrolled in the College of Literature, Science, and the Arts.

Students who are candidates for the bachelor's degree and who complete satisfactorily one of the curricula here outlined, maintaining in journalism an average grade of B or above, are eligible to receive upon graduation a certificate in journalism. Candidates for the certificate in journalism should enroll with the director of courses in journalism not later than the beginning of their junior year.

Students who receive a grade of C or less in *Elements of Journalism* (31), or other elementary newspaper courses, are not encouraged to continue the work in journalism, and may in no case elect further newspaper courses without permission of the instructor or instructors concerned.

Through the courtesy of Mr. Willis J. Abbot of the Law class of 1884, editor of *The Christian Science Monitor*, two students who hold certificates in journalism are appointed each year, at the time of graduation, to the staff of the *Monitor* for a minimum period of two months. The appointments are made on the recommendation of the faculty in journalism, and as a rule one of the appointees will be a woman.

Students who intend to follow newspaper careers are urged to identify themselves throughout their college residence with the Stu-



dents' Press Club. Announcements concerning the Club and its activities will appear from time to time in the *Daily Official Bulletin*.

### The McNaught Awards in Journalism

As an incentive to thorough preparation for newspaper work, the department of journalism will award at the close of the collegiate year, for exceptional proficiency, three medals, to be known as the McNaught Medals in Journalism. A gold medal will be awarded to the student about to be graduated who, as a candidate for the certificate in journalism, has maintained the best scholarship record during his four years of undergraduate study. A silver medal will be awarded to the student who has shown during the year the greatest proficiency in news writing. A golden bronze medal will be awarded to the student who has written the best editorials during the year.

The awards will be made by a jury, to be appointed by Professor Brumm, consisting of members of the faculty and one or more editors of Michigan newspapers. The awards will be continued annually hereafter, beginning in June, 1924.

### Programs of Study

In the selection of studies and the apportionment of hours, as indicated below, two classes of students have been taken into consideration: (1) those who wish to pursue a general course, and (2) those who wish to prepare for a special kind of writing or a particular department of a newspaper. The elections may be modified, upon consultation, to meet the individual needs of students.

*Description of the various courses in journalism may be found in the section of this announcement devoted to the department of rhetoric and journalism.*

### SUMMARY OF PROGRAMS OF STUDY

#### A

#### GENERAL CURRICULUM

	HOURS		HOURS
Journalism	20	Economics	10
Rhetoric	9	Sociology	4
English	10	Philosophy	3
*Foreign Language	16	Law	3
History	16	Science (including Psychol-	
Political Science	6	ogy)	12
		Electives	11

\* This requirement will be reduced in the case of students who present foreign language for admission.

**B**  
**SPECIAL CURRICULA**

**I**

For students who wish to specialize in History, Government, and Politics.

	HOURS		HOURS
Journalism	18	Economics	8
Rhetoric	9	Sociology	4
English	10	Law	6
*Foreign Language	16	Science	12
History	20	Elective	1
Political Science	16		

**2**

For students who wish to specialize in Economics and Sociology.

	HOURS		HOURS
Journalism	18	Economics	24
Rhetoric	9	Sociology	12
English	8	Law	6
*Foreign Language	16	Science	12
History	14	Elective	1

**3**

For students who wish to specialize in reviewing, and in dramatic, art, and musical criticism.

	HOURS		HOURS
Journalism	21	Philosophy (including	
†Rhetoric	12	Aesthetics)	7
English	20	Music, Painting (or other	
Foreign Language	24	arts)	10
History	14	Science	12

**4**

For students who wish to specialize in technical journalism.

	HOURS		HOURS
Journalism	21	Economics	20
Rhetoric	9	Sociology	4
English	10	Law	6
*Foreign Language	16	Science	12
History	14	Electives	2
Political Science	6		

† Students following this program will find Courses 12, 19, and 20 of especial interest and value.

### Special Lectures

Lectures upon newsgathering, newswriting, copy reading, editorial writing, newspaper management, and other important features of newspaper method and procedure, will be given in the course of the year by prominent newspaper men.

For printed information concerning the requirements for admission to the University, dates of entrance examinations, conditions of admission to advanced standing, or requirements for graduation, address the Secretary of the University, Ann Arbor, Michigan. Correspondence on these subjects should be addressed to Dean J. R. Effinger, or to the Registrar. Correspondence on the courses in journalism should be addressed to Professor J. L. Brumm, Ann Arbor, Michigan.

### CURRICULUM IN TRAINING FOR SECRETARIAL WORK

All the various collegiate courses constituting a program of studies in training for secretarial work are offered. Students desiring to pursue such a program will be assisted in selecting and arranging these courses.

### CURRICULUM IN MUNICIPAL ADMINISTRATION

The curriculum in municipal administration is organized as a special program of study leading to the degree of Master of Arts, or Master of Science, in Municipal Administration. The last year of work must be pursued in the Graduate School, but many of the prescribed courses should be taken as undergraduate work.

The program of courses is designed to meet the needs of all those who aim to take an active part in the guidance of municipal affairs. It should be of greatest utility in training for municipal office, whether of bureau, division, or department head, of mayor, or director under the commission form of city government, or of city manager; and for such public or semi-public positions as director of bureaus of municipal reference and research or as civic and commercial secretary.

It is desirable that students intending to pursue this program should communicate as early as practicable in their academic residence with the chairman of the Committee on the Program of Courses in Municipal Administration. An announcement of this program is issued by the University in the form of a special bulletin and may be obtained by addressing the Secretary of the University. General correspondence concerning the course may be directed to the Chairman of the Committee, Professor Thomas H. Reed, Bureau of Government, University of Michigan. Inquiries regarding entrance requirements or credit for advanced work should be addressed to Dean John R. Effinger, or to the Registrar.

The privilege of making certain elections in the College of Engineering, the Medical, or the Law School, is granted to students enrolled in this curriculum.

### CURRICULA IN BUSINESS ADMINISTRATION

Attention is called to the new School of Business Administration which is to be opened at the beginning of the academic year 1924-1925. Courses in Business Administration will be offered during the next three academic years both in the department of Economics, in the College of Literature, Science, and the Arts, and in the School of Business Administration; but with the beginning of the year 1927-1928, the courses will be withdrawn from the department of Economics and instruction in Business Administration confined to the new School. For information regarding the programs of study and the requirements for admission and graduation see the chapter on the School of Business Administration, immediately following that on the School of Education.

The Curricula in Business Administration are suggested four-years programs of study arranged for students who are regularly enrolled in the College of Literature, Science, and the Arts, and who are candidates for a degree. They are intended to meet the needs of those persons who desire to fit themselves, by a combination of liberal culture and professional studies, for positions as executives and experts in industrial establishments of the public service.

Such programs are now offered in General Business, Accounting, Banking, Insurance, and Railway Administration. The programs cover four years of undergraduate study. Of the 120 semester hours required for the bachelor degree, from 70 to 100 hours are prescribed, of which between 25 and 50 hours are of professional or technical character.

Persons desiring to pursue these programs must gain admission to the College of Literature, Science, and the Arts, as candidates for a degree, or to the Graduate School. They are then expected to enroll with the Secretary of the Committee on Business Administration (Room 106, Ec.) at the beginning of their first year of residence or as soon thereafter as possible, *but not later than the beginning of their last year of residence.*

It is not intended that the precise requirements set forth in these programs shall be rigidly insisted upon. Under the advice of the Secretary of the Committee, the student will be permitted to modify his program or arrange one better adapted to his special needs. In all cases, however, students must take Courses 1 and 2 in Mathematics, and a minimum of 30 hours in Political Economy and Business Administration, exclusive of Courses 1 and 2. (For the purpose of this requirement, Courses 51, 52, 53, 54, 55, 56, 67, and 68 in Mathematics will be considered as Business Administration.) In addition to these requirements all students must observe the restrictions governing their election established by the faculty of the College of Literature, Science, and the Arts. Students enrolled in these programs having 60 hours to their credit and a good record for scholar-

ship may, with the consent of the Committee, elect in the College of Engineering the courses designated in these programs. For all such courses elected outside the College of Literature, Science, and the Arts an authorization blank, properly filled out, must be secured from the Secretary of the Committee. The credit so obtained outside of the College will be counted toward the literary degree, only on condition that the student finishes the four-year program in which the outside course occurs.

Any student who, while satisfying the requirements for the degree of Bachelor of Arts (see page 150), completes any one of the suggested programs of study, or any similar program which may be approved by the Committee on Business Administration, as outlined above, will be entitled to receive, in addition to his diploma, a special certificate conferred by the Board of Regents upon the recommendation of the Faculty.

Students who have secured a bachelor's degree as a result of studies along other lines will find in the more advanced courses here offered an opportunity for a profitable specialization; and the rules governing graduate work will apply to graduate students who enroll themselves as students in these courses. Those interested in this grade of studies should consult the annual announcement of the Graduate School.

Graduate students who complete satisfactorily an approved program of study in Business Administration extending for at least one year will be entitled to receive a special certificate, whether or not they are candidates for graduate degrees.

A special announcement of the Curricula in Business Administration may be obtained by addressing the Secretary of the University. Inquiries concerning requirements for entering the University, or credit for advanced work, should be addressed to Dean J. R. Effinger, or to the Registrar.

### SUGGESTED PROGRAMS OF STUDY

In order to make clear the character of the work offered in Business Administration, there are inserted at this point, in tabular form, five suggested programs of study.

In the selection of electives the student should consult the instructor in charge of the particular program in which he is interested.

Not more than sixteen hours a week may be elected except by special permission obtained from the Committee on Extra Hours in accordance with the rules of the College of Literature, Science, and the Arts.

#### General Business

This program includes a balanced arrangement of studies selected from each department of business administration; law, accounting, finance, commerce, and the executive art. It is recommended to students who desire to prepare themselves to become general executives, that is to say, who desire to prepare themselves for

such positions as that of branch manager, office manager, general superintendent, sales manager, employment manager, or superintendent in charge of industrial relations. It is further recommended to students who intend to specialize in graduate years, or who are not yet decided in what direction their advanced work will be carried.

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Mathematics 1	4	Mathematics 2	4
Electives	8	Electives	8
	—		—
	15		15
SECOND YEAR			
Political Science 1	3	Political Science 2	3
Mathematics 51	3	Mathematics 49	3
Economics 1	3	Economics 2	3
Economics 38	3	Economics 39	3
Electives	3	Electives	3
	—		—
	15		15
THIRD YEAR			
Economics 3	3	Economics 10	3
Economics 6	3	Economics 3a	3
Economics 9	3	Economics 12	3
Economics 14	3	Economics 15	3
Electives	3	Electives	3
	—		—
	15		15
FOURTH YEAR			
Economics 31	3	Economics 31a	2
Economics 32	3	Economics 34	3
Economics 37	3	Economics 37a	3
Economics 46	3	Economics 47	3
Electives	3	Electives	4
	—		—
	15		15

### Accounting

This program is intended (a) for those who wish to enter the profession of public accounting, (b) for those who expect to occupy positions as accountants in financial, manufacturing, mercantile, or public utility industries, (c) for those who are preparing themselves for positions as accountants or statisticians to municipalities and regulative bodies such as railroad or public service commissions, and (d) for those who are intending to teach accounting.

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Mathematics 1	4	Mathematics 2	4
Electives	8	Electives	8
	—		—
	15		15
SECOND YEAR			
Political Science 1	3	Political Science 2	3
Mathematics 51	3	Mathematics 49	3
Economics 1	3	Economics 2	3
Economics 38	3	Economics 39	3
Electives	3	Electives	3
	—		—
	15		15
THIRD YEAR			
Economics 6	3	Economics 10	3
Economics 9	3	Economics 12	3
Economics 14	3	Economics 15	3
Economics 40	3	Economics 42	3
Electives	3	Electives	3
	—		—
	15		15
FOURTH YEAR			
Economics 32	3	Economics 34	2
Economics 37	3	Economics 43	3
Economics 43a or 36a	3	Economics 44	3
Economics 46	3	Economics 47	3
Electives	3	Electives	4
	—		—
	15		15

**Banking**

This program is designed for students who expect to enter banking or allied fields. Its aim is to enable the student to master the principles underlying financial operations and, at the same time, to provide him with a foundation of cultural studies.

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Mathematics 1	4	Mathematics 2	4
Electives	8	Electives	8
	—		—
	15		15

SECOND YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Political Science 1	3	Political Science 2	3
Mathematics 51	3	Mathematics 49	3
Economics 1	3	Economics 2	3
Economics 38	3	Economics 39	3
Electives	3	Electives	3
	15		15
THIRD YEAR			
Economics 6	3	Economics 10	3
Economics 9	3	Economics 12	3
Economics 14	3	Economics 15	3
Electives	6	Economics 33	2
	15	Electives	4
			15
FOURTH YEAR			
Economics 4	3	Economics 5	2
Economics 31	3	Economics 31a	2
Economics 37	3	Economics 37a	3
Economics 46	3	Economics 47	3
Electives	3	Electives	5
	15		15

### Railway Administration

This program is designed to meet the needs of four classes of students: (a) those who wish to enter the administrative department of railways, (b) those who desire to become attached to federal or state railway commissions, (c) persons preparing for the statistical or appraisal work of banking or brokerage houses and, (d) those desiring to understand the transportation problem as a part of a general education.

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Mathematics 1	4	Mathematics 2	4
Electives	8	Electives	8
	15		15



FIRST SEMESTER		SECOND YEAR	
COURSES	HOURS	COURSES	HOURS
Economics 1	3	Economics 2	3
Economics 38	3	Economics 39	3
Political Science 1	3	Political Science 2	3
Mathematics 51	3	Mathematics	3
Electives	3	Electives	3
	—		15
	15		
		THIRD YEAR	
Economics 6	3	Economics 10	3
Economics 9	3	Economics 15	3
Economics 14	3	Economics 12	3
Civil Engineering 20	2	Civil Engineering 21	2
Electives	4	Electives	4
	—		—
	15		15
		FOURTH YEAR	
Economics 36	3	Economics 16	3
Economics 37	3	Economics 32	3
Economics 46	3	Economics 36a	3
Mechanical Engineering 24	3	Economics 47	2
Civil Engineering 22	2	Civil Engineering 23	2
Drawing 12	2	Electives	3
	—		—
	16		16

### Insurance

The following program is designed for the student who intends to enter the actuarial profession, either in life or casualty insurance, or who expects to undertake statistical work of an advanced nature. While the actuarial and mathematical phases of insurance are emphasized, it may be pointed out that the training thus secured frequently leads to other lines of official work, such as secretarial, managerial, and executive. *The first two years of the insurance program with Mathematics 3 and 4 replaced by Mathematics 49 and 50 may be taken with profit by any student in business administration who desires to obtain a working knowledge of financial mathematics and its application to business.*

Students who have completed the first two years of the program in Accounting are prepared to take Courses 48a and 48b in Insurance Accounting. This would fit them for responsible positions in various home office departments of insurance companies and state departments of insurance. It would not be necessary for them to take the advanced courses in Mathematics required of those intending to enter the actuarial profession.

Students taking the program in General Business or the program in Banking may fit themselves for similar positions by adding Mathematics 49, 51, and 52 in the second year and Courses 48a and 48b in Insurance Accounting the third or fourth year.

For further information, students are advised to consult the professor in charge, Room 405, Mason Hall, and the special announcement of courses in financial, statistical, and actuarial mathematics.

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Mathematics 1	4	Mathematics 2	4
Electives	8	Electives	8
	<hr/>		<hr/>
	15		15
SECOND YEAR			
Mathematics 51	3	Mathematics 52	3
Mathematics 3 or 3E	3 or 5	Mathematics 4 or 4E	3 or 5
Economics 1	3	Economics 2	3
Electives	4 or 6	Electives	4 or 6
	<hr/>		<hr/>
	15		15
THIRD YEAR			
Mathematics 53	3	Mathematics 54	3
Mathematics 49	3	Mathematics 50	2
Mathematics 13	3	Mathematics 14	3
Economics 38	4	Economics 39	4
Electives	3	Electives	4
	<hr/>		<hr/>
	16		16
FOURTH YEAR			
Mathematics 55	3	Mathematics 56	3
Mathematics 59	2	Mathematics 60	2
Mathematics 67	2	Mathematics 68	2
Economics 46	3	Economics 47	3
Economics 48a	2	Economics 48b	2
Electives	4	Electives	4
	<hr/>		<hr/>
	16		16

### CURRICULUM IN SOCIAL WORK

The curriculum for the training of social workers is designed to meet the increasing demands for trained persons in the various fields of public and private philanthropy. Among the different agencies doing social work which look to the University for their person-

nel are Associated Charities or Family Welfare Agencies, Public Welfare Departments, Hospitals, Medical and Psychiatric Clinics, Child Welfare Societies, Industrial Welfare Departments of Factories and Stores, Institutions for Dependents and Defectives, Financial Federations, Recreation Commissions, Settlements, Civic Leagues, Chambers of Commerce, Research Bureaus, and many other organizations of similar or allied purpose.

Undergraduates taking this curriculum are subject to all the requirements governing admission, election of studies, graduation, etc., of the College of Literature, Science, and the Arts. It is expected that undergraduates following this curriculum shall do their major work in the Social Sciences, including Sociology, Political Science, Economics, Biology, Psychology, History, and Philosophy. A suggested program of studies is as follows:

FIRST YEAR			
COURSES	HOURS	COURSES	HOURS
Rhetoric 1, 2	6	Botany 1 or	
Mathematics 1	4	Zoölogy 1 or	
History 1, 2	8	Geology 1	4
Foreign Language	8		
SECOND YEAR			
English 1	3	Psychology 7	3
Economics 1	3	Philosophy 1	3
Political Science 1, 2	6	Sociology 19	4
Zoölogy 3	2	Foreign Language	6
THIRD YEAR			
Mathematics 49	2	Sociology 27, 28, 30	8
Political Science 3, 15	5	Foreign Language	2
Zoölogy 3a	2	Physiology 4, 16a, 16b, 17	9
Psychology 21, 28	4		
FOURTH YEAR			
Economics 13	3	Psychiatry	2
Political Science 17	2	Hygiene	3
Sociology 20, 21, 22, 23, 23a, 24, 26	14	Elective	8

As stated in connection with the description of courses in Sociology, a few of the hours of the senior year may be spent in Field Work in Ann Arbor or Detroit by students in good standing who are enrolled in Sociology courses of a practical character. If the Field Work is done in Detroit, three hours a week, exclusive of the time spent in travel between Ann Arbor and Detroit, and continued throughout a semester, will entitle the student to one hour of University credit. The same arrangement holds for Field Work done in Ann Arbor, that is, one hour's credit will be given for three hours of such work. Such work must be included in the semester elections.

Undergraduates who desire to take this curriculum should consult with Professor A. E. Wood, Director of the Curriculum in Social Work, 205 Economics Building, or at 605 Forest Avenue, Ann Arbor.

Graduate students, who are candidates for the degree of Master of Arts should consult with the Dean of the Graduate School, and with Professor Wood, and are referred to the Special Announcement of Graduate courses in this field.

### **CURRICULUM IN PHYSICS**

Recent industrial development has been characterized by the application of Physics to many kinds of technical problems. Although the College of Literature, Science, and the Arts offers no special degree in Physics, the following outline is presented as meeting the needs of students who may wish to follow the profession of industrial physicist. The program may be varied somewhat widely according to the needs and tastes of the individual, and may readily be adapted to the requirements of prospective teachers. Upon the successful completion of the program as outlined the graduate will be prepared to practice his profession upon the same footing as the graduate chemist or engineer.

Either high school physics and trigonometry or a year of college mathematics (Mathematics 1 and 2) is a prerequisite for Physics 1. Students entering college with credit in preparatory physics may elect Physics 1 in the first year if they have credit in trigonometry, or if they elect Mathematics 1 at the same time. This procedure is strongly recommended. For those who enter college without either prerequisite, however, there is provided a course, Physics Z, which may be taken in the first year, and may be followed by Physics 1 either the second semester of the first year, or the first semester of the second year.

The program as outlined gives room for such elective studies as will satisfy the group requirements, for excellent preparation in mathematics, and for adequate attention to the cognate subjects, chemistry, astronomy, geology, and mineralogy. It cannot be too emphatically stated that mathematical equipment is necessary for success in physics. It must, however, be borne in mind that the viewpoints of these two sciences are somewhat apart, and that neither familiarity with mathematics nor interest in popular science will guarantee success in a subject so broad and so fundamental as physics.

The programs suggested for the undergraduate years are as follows. Electives and alternatives must be so chosen as to satisfy the group requirements for graduation (see page 150). Students planning to specialize in Physics should confer with the members of the departmental faculty.

## PROGRAM OF STUDIES

FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
French of German	4	French or German	4
Mathematics 1	4	Mathematics 2	4
Physics 1	4	Physics 2	4
	15		15

SECOND YEAR			
Physics 3, or	2	Physics 4, or	2
Physics 5	4	Physics 6	4
Mathematics 3 or 3E	3 or 5	Mathematics 4 or 4E	3 or 5
Astronomy 1 or	3	Astronomy 2 or	3
Chemistry	4	Chemistry	4 or 5
History 1 or 1a or	4	History 2 or 2a or	4
Economics 1	3	Economics 2	3

An elective from the language group, a continuation perhaps of the language taken in the first year, may be substituted in this program, either for the Astronomy or Chemistry, or for the History or Economics. Physics 1a and 2a are suggested in case time is available.

After the second year the student who had calculus may continue the major subject with any of the intermediate courses, 5, 6, 7, 9, 11, 12, each of which gives four hours credit.

THIRD YEAR			
COURSES	HOURS	COURSES	HOURS
Physics 7	4	Physics 9	4
Mathematics 9	2	Chemistry 3 or 8	4 or 5
Philosophy 1	3	Mathematics 58	2
German or French	4	Philosophy 9	3
		German or French	4

Physics 15 and 16 may be taken instead of Mathematics 57 and 58.

FIRST SEMESTER		FOURTH YEAR	
COURSES	HOURS	COURSES	HOURS
Physics 11	4	Physics 12	4
Physics 13 or 19	2 or 3	Physics 14 or 20	2 or 3
Mathematics 29	3	Mathematics 12	3
Mathematics 5 or 11	2 or 3	Physics 38	1
Physics 37	1	Electives	8
Electives	4 or 6		

Physics 6, Economics 1, or a language may be taken the second semester.

Not more than sixteen hours a week may be elected except by special permission obtained from the Committee on Extra Hours in accordance with the rules of the College.

### CURRICULUM IN CHEMISTRY

The Curriculum in Chemistry has been devised for students registered in the College of Literature, Science, and the Arts who desire to prepare themselves for professional work in chemistry. The Board of Regents of the University, at their May meeting, 1914, authorized the preparation of a program of studies leading to the degree of Bachelor of Science in Chemistry. The requirements of the College of Literature, Science, and the Arts in regard to admission, election of studies, grades, discipline, and graduation apply to students taking the curriculum in chemistry, except for some modifications of the group requirements. Students who complete either of the programs of study outlined below will satisfy the requirements for graduation leading to the degree of Bachelor of Science in Chemistry.

The degree of Master of Science in Chemistry will be conferred after a full year's graduate training in chemistry, following the completion of all requirements for the degree of Bachelor of Science in Chemistry.

Students intending to take the curriculum in chemistry should also enroll with the representative of the chemistry faculty at the beginning of their University residence. For the year 1923-1924 this representative will be Assistant Professor McAlpine, Room 406, Chemistry Building. Students in their second, third, or fourth years of University residence may prepare themselves to become candidates for the degree of Bachelor of Science in Chemistry upon completing the required courses, or their equivalents, as outlined in the programs of study. Students in this course are advised to remain for at least one summer session during the period of University residence, to provide opportunity for more elective work than is permitted by the schedule of studies during the first three years. Those planning to go on with graduate work are urged to take such additional courses in French and German as will enable them to be-

come thoroughly cognizant of the scientific literature in both these languages. They should also take additional courses in mathematics dealing with graphical methods.

## PROGRAM OF STUDIES

## I

†Students entering without French, German, or Chemistry.

FIRST SEMESTER		FIRST YEAR		SECOND SEMESTER*	
COURSES	HOURS	COURSES	HOURS	COURSES	HOURS
French 1 or German 1	4	French 2 or German 2	4		
Rhetoric 1	3	Rhetoric 2	3		
Mathematics 1	4	Mathematics 2	4		
Chemistry 1	4	Chemistry 2	4		
	—		—		—
	15		15		15
		SECOND YEAR			
Physics 1 and 1a	5	Physics 2 and 2a	5		
Mathematics 3	3	Mathematics 4	3		
French 3 or German 3	4	French 4, or German 4	4		
Chemistry 3	5	Chemistry 5	5		
	—		—		—
	17		17		17
		THIRD YEAR**			
Chemistry 7	5	Chemistry 7a	5		
Chemistry 28	4	Chemistry 8	4		
Elective—Group III	6	Chemistry 35	2		
	—	Elective—Group III**	6		
	16		—		—
			17		17
		FOURTH YEAR			
Chemistry 13	4	Chemistry 15	2		
Physics 5 or 5E	4	Electives in Chemistry			
Special Electives	5	not less than	5		
Elective	3	Elective	8		
	—		—		—
	16		16		16

† Students presenting two units of French or German for admission will take French or German 3 and 4 the first year and German or French 1 and 2 the second year.

\* Students beginning chemistry the second semester must elect Chemistry 1b and follow this with either Chemistry 2b or 2E the first semester of the next year, or with Chemistry 2 in the summer session. The latter course is advised.

\*\* Permission to elect 17 hours in the College of Literature, Science, and the Arts is granted only to applicants for extra hours who have a record for superior scholarship.

Students entering with one unit of Chemistry will take Chemistry 2b and 2E, followed by Chemistry 3 in the first year, Chemistry 5 and 28 the second year, and Chemistry 35 in the first semester of the third year.

General correspondence concerning the curriculum may be addressed to the Director of the Chemical Laboratory, The University, Ann Arbor. Inquiries concerning entrance requirements or credit for advanced work should be addressed to Dean J. R. Effinger, or to the Registrar.

### CURRICULA IN GEOLOGY

The curricula in Geology have been devised for students registered in the College of Literature, Science, and the Arts who desire to prepare themselves for professional work in Geology. Students who have earned not less than 130 hours and 130 points and who have satisfactorily completed one of the following programs will be nominated to the faculty of the College for recommendation to receive the degree of Bachelor of Science together with a special certificate indicating the phase of Geology in which they have specialized. The requirements of the College in regard to admission, election of studies, grades, discipline, and graduation apply to students taking one of these curricula, except for the additional requirements here stated.

Students planning to take one of the curricula in Geology should announce such intention to the Instructor concerned at the beginning of their University residence. Students of sophomore or later years who may decide to enter upon one of these curricula may be recommended to receive the certificate in Geology in the Graduate School in connection with the degree of Master of Science.

### PROGRAM IN PHYSICAL GEOLOGY

FIRST SEMESTER		THIRD YEAR		SECOND SEMESTER	
COURSES	HOURS			COURSES	HOURS
Rhetoric 1	3			Rhetoric 2	3
French or German	4			French or German	4
Chemistry 1	4			Chemistry 2	2
Mathematics 1	4			Mathematics 2	4
	—				—
	15				15
		SECOND YEAR			
French or German	4	French or German	4		
Physics 1	4	Physics 2	4		
Mineralogy 1	2	Mineralogy 9	2		
Geology 3	3	Geology 4b	3		
Elective	3	Elective	3		
	—		—		
	16		16		



SUMMER SESSION			
Geology 5		8 hours	
THIRD YEAR			
COURSES	HOURS	COURSES	HOURS
Astronomy 1	3	Astronomy 2	3
Geology 20	3	Geology 21	3
Geology 26 or 25	3	Geology 22	3
Mineralogy 4	2	Geology 27 or 28	3
Elective	5	Elective	4
	<hr/>		<hr/>
	16		16
FOURTH YEAR			
Geology 15a	3	Geology 15b	3
Geology 25 or 16	3	Geology 28 or 27	3
Geology 50 or 51	6	Geology 50 or 51	6
Elective	4	Elective	4
	<hr/>		<hr/>
	16		16

### PROGRAM IN ECONOMIC GEOLOGY (METALS)

FIRST YEAR			
Rhetoric 1	3	Rhetoric 2	3
French or German	4	French or German	4
Chemistry 1	4	Chemistry 2	4
Mathematics 1	4	Mathematics 2	4
	<hr/>		<hr/>
	15		15
SECOND YEAR			
French or German	4	French or German	4
Chemistry 3	5	Chemistry 5	5
Mineralogy 1	2	Mineralogy 9	2
Geology 3	3	Geology 4	3
Elective	2	Elective	2
	<hr/>		<hr/>
	16		16

SUMMER SESSION			
Geology 5		8 hours	
THIRD YEAR			
Physics 1	4	Mineralogy 6	4
Mineralogy 4 or 5	2	Geology 22	3
Geology 15a or 45	3	Geology 15b or 46	3
Geology 42a	3	Geology 42b	3
Elective	4	Elective	3
	<hr/>		<hr/>
	16		16

FOURTH YEAR			
COURSES	HOURS	COURSES	HOURS
Geology 25	4	Geology 20	3
Geology 15a or 45	3	Geology 15b or 46	3
Geology 53	3	Geology 53	4
Mineralogy 10	3	Mineralogy 11	3
Elective	3	Elective	3
	<hr/> 16		<hr/> 16

## PROGRAM IN ECONOMIC GEOLOGY (NON-METALS)

FIRST YEAR			
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
French or German	4	French or German	4
Chemistry 1	4	Chemistry 2	4
Mathematics 1	4	Mathematics 2	4
	<hr/> 15		<hr/> 15

SECOND YEAR			
French or German	4	French or German	4
Physics 1	4	Physics 2	4
Mineralogy 1	2	Mineralogy 9	2
Geology 3	3	Geology 4	3
Elective	3	Elective	3
	<hr/> 16		<hr/> 16

SUMMER SESSION	
Geology 5	8 hours

THIRD YEAR			
Geology 12a	3	Geology 12b	3
Geology 42a	3	Geology 42b	3
Geology 43	3	Geology 44	3
Mineralogy 4	2	Geology 22	3
Elective	5	Elective	4
	<hr/> 16		<hr/> 16

FOURTH YEAR			
Geology 15a	3	Geology 15b	3
Geology 52 or 53	6	Geology 52 or 53	7
Elective	7	Elective	6
	<hr/> 16		<hr/> 16

**CURRICULUM IN LANDSCAPE DESIGN**

The Curriculum in Landscape Design is organized as a special program of study in the College of Literature, Science, and the Arts, and leads to a special degree (Master in Landscape Design). It requires a minimum of five years' college work. The program is as follows:

**PROGRAM OF STUDIES**

FIRST YEAR			
FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Language	4	Language	4
Botany 1	4	Mathematics 1	4
Drawing 21	2	Drawing 22	2
Drawing 4a	3	Botany 4	3
SECOND YEAR			
Language or Rhetoric	3 or 4	Language or Rhetoric	3 or 4
Surveying 1	3	Surveying 2	4
Geology 3	3	Drawing 23	2
Landscape Design 1a	3	Landscape Design 2a	3
Landscape Design 3	3	Landscape Design 4	3
Summer Session at Camp Davis: Surveying 3, 8 hours.			
THIRD YEAR			
History or Economics	3	History or Economics	3
Architecture 1	3	Architecture 4	3
Drawing 24	2	Drawing 25	2
Landscape Design 5 or 13	3	Landscape Design 6	3
Elective	5	Landscape Design 14	
		or Elective	3
		Elective	2 or 3
FOURTH YEAR			
Civil Engineering 40	2	Civil Engineering 26	2
Drawing 35	1	Architecture 21	2
Landscape Design 7	4	Landscape Design 8	4
Landscape Design 5 or 13	3	Landscape Design 14	
Political Science 3	3	or Elective	3
Elective	3	Political Science 4	3
		Elective	3
FIFTH YEAR			
Landscape Design 9	4	Landscape Design 10	6
Landscape Design 11	4	Landscape Design 12	6
Landscape Design 15	2	Landscape Design 16	2
Electives	4		

Students entering the course on advanced standing and others preparing for some special phase of the landscape profession may, by permission of the Professor in charge and at his discretion, substitute other courses of equivalent time value for some of those specified above.

The following courses are recommended as electives:

Zoölogy 1 and 7	Political Science 1 and 2
Botany 7, 17, 25, and 26	Civil Engineering 34, 36, 41, 43
Mineralogy 1	Geology 22
History 1a, 2a, 5, 6, 14, and 15	Economics 1E
Physics 1 and 2	Fine Arts 1, 3, 5, 6, and 8
	Forestry 5, 6, 32, 24, and 24a

### Program in Park Management

The following program is planned for the student who wishes to fit himself for the position of City and County Park Superintendent, Estate Superintendent, or Landscape Construction Superintendent. It includes a balanced program in natural science, engineering, landscape design, and forestry.

### PROGRAM OF STUDIES

FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Language	4	Language	4
Botany 1	4	Zoölogy 1	4
Drawing 21	2	Mathematics 1	4
Landscape Design 1a	3		
SECOND YEAR		SECOND YEAR	
Political Science 1	3	Political Science 2	3
Language	4	Landscape Design 2a	3
Surveying 1	3	Surveying 2	4
Landscape Design 3	3	Botany 4	3
Elective	3	Landscape Design 4	3
THIRD YEAR		THIRD YEAR	
Political Science 3	3	Geology 22	3
Zoölogy 7	4	Botany 8	4
Geology 3	3	Landscape Design 6	4
Landscape Design 7	4	Landscape Design 14	3
Forestry 23	2	Elective	3
FOURTH YEAR		FOURTH YEAR	
Botany 17	4	Forestry 24a	2
Forestry 5	4	Forestry 6	4
Landscape Design 7	4	Landscape Design 10	4
Landscape Design 9	4	Civil Engineering 26	2
		Civil Engineering 40	2
		Elective	2

Students following the above program or the curriculum in Landscape Design are expected to secure practical experience in horticulture at the Nichols Arboretum, or with some nursery firm, before graduation.

Not more than sixteen hours a week may be elected except by special permission obtained from the Committee on Extra Hours in accordance with the rules of the College.

The object of the curriculum in Landscape Design is primarily to train professional landscape designers, and hence it includes lines of study which are essential to a liberal college education in addition to the technical studies. Courses 1, 2, and 5, in the department of Landscape Design are open to all students except freshmen.

No one will be allowed to complete all the courses in landscape design as an undergraduate. At least the last year of work must be taken as a graduate student.

The privilege of taking certain electives in the College of Engineering is granted to students enrolled in this program.

A special bulletin on the Curriculum in Landscape Design, containing the required program and other information, may be obtained by addressing the Secretary of the University. Correspondence concerning the course may be addressed to Professor Aubrey Tealdi, The University, Ann Arbor. Inquiries concerning the requirements for entering the University, or for credit for advanced work, should be addressed to Dean J. R. Effinger, or to the Registrar.

### **CURRICULUM IN FORESTRY**

The Curriculum in Forestry is organized as a special program of study in the College of Literature, Science, and the Arts, and leads to special degrees (Bachelor of Science in Forestry and Master of Science in Forestry). The requirements for the degree of Bachelor of Science in Forestry are stated on page 152. The prescribed curriculum there referred to is as follows:

#### **PROGRAM OF STUDIES**

##### **Four-Year Curriculum**

##### **FIRST YEAR**

FIRST SEMESTER		SECOND SEMESTER	
COURSES	HOURS	COURSES	HOURS
Rhetoric 1	3	Rhetoric 2	3
Botany 1	4	Zoölogy 1	4
Mathematics 1	4	Mathematics 2	4
Chemistry 1	4	Chemistry 2	4
		Forestry 22	1

		SECOND YEAR	
COURSES	HOURS	COURSES	HOURS
Surveying 12	4	Surveying 13	4
Botany 13	4	Botany 14	4
Physics 1	4	Mineralogy 1	2
Forestry 1	4	Forestry 6	4

Summer Session at Camp Davis: Surveying 3, 8 hours.

		THIRD YEAR	
Forestry 5	4	Forestry 8	4
Forestry 7	4	Forestry 10	4
Forestry 13	3	Forestry 14	3
Geology 3	3	Geology 4b	3
Mineralogy 4	2	Forestry 4	2

		FOURTH YEAR	
Forestry 3	2	Forestry 16	4
Forestry 9	4	Forestry 18	3
Forestry 15	4	Forestry 20	2
Forestry 19	3	Economics 1E	3
Botany 17	4		

Not more than sixteen hours a week may be elected except by special permission obtained from the Committee on Extra Hours in accordance with the rules of the College.

### Master of Science in Forestry

Men intending to become candidates for the degree of Master of Science in Forestry should consult with the faculty of Forestry immediately upon entering the University, so that their program of studies may be properly arranged at the very beginning.

There are two main classes of such forestry students:

(A) Those who enter this University as undergraduates with the intention of taking the degree of Bachelor of Science in Forestry at the end of their fourth year, and the degree of Master of Science in Forestry at the end of the fifth year.

(B) Those who begin the study of Forestry as graduate students (except candidates for the doctorate). Such students require two years to complete the course in forestry, and receive the degree of Master of Science in Forestry.

In addition to the above, there are two other classes of forestry students:

(C) Candidates for the doctorate (Doctor of Philosophy or Doctor of Science) may elect one or both minors in forestry.

(D) Special students will be admitted to the work in forestry provided they have training and experience sufficient to warrant their taking any of the forestry courses.

A special bulletin describing the curriculum in forestry, and containing the required program and other details, may be obtained by addressing the Secretary of the University. General correspondence concerning the curriculum may be directed to the Professor of Forestry, The University, Ann Arbor. Inquiries concerning entrance requirements or credit for advanced work should be addressed to Dean J. R. Effinger, or to the Registrar.

### **Important Notice**

Students entering the College of Literature, Science, and the Arts with intention of taking the Curriculum in Forestry should inform the committee on Elections of that intention, in order that their election of studies may be made in accordance with the prescribed program given above.

All Forestry students entering the University with advanced standing and those transferring from some other course to that of Forestry, should consult the faculty of the department of Forestry before making their elections.

The Curriculum in Forestry is prescribed throughout, and must be taken in order given above. No deviations may be made from this order except by written permission of the Professor of Forestry.

Before making elections each semester, all Forestry students should consult with a committee of the Forestry faculty appointed for that purpose.

### **TEACHER'S DIPLOMA AND TEACHER'S CERTIFICATE**

The aims of the University in providing instruction in Education are as follows:

1. To fit the University student for the higher positions in the public school service.
2. To promote the study of education as a science.
3. To teach the history of education, and of educational systems and doctrines.
4. To secure to teaching the rights, prerogatives, and advantages of a profession.
5. To give a more perfect unity to our State educational system by bringing the secondary schools into closer relations with the University.

### **Teacher's Certificate**

The Teacher's Certificate is given to a student in connection with his bachelor's degree in Education, provided he has satisfactorily completed all of the work prescribed for such certificate including observation and practice teaching.

Until October 1st, 1926, students graduating from the College of Literature, Science, and the Arts, who shall have completed fif-

teen hours work in Education required by the School of Education for the Teacher's Certificate, shall be entitled to this certificate upon recommendation of the Faculty of the School of Education. These hours must include the following courses: Secondary Education 1, Educational Psychology 1, and one of the Special Method courses, listed as Secondary Education courses 150-160.

The certificate is also given to a graduate student at the time of receiving a master's or a doctor's degree, provided he has pursued teaching as a major or a minor study, or has otherwise satisfactorily completed an equivalent amount of pedagogical work.

By authority of an act of the State Legislature, passed in 1891 and amended in 1903 and 1921, the Regents, acting upon the recommendation of the Faculty of this School, give a Teacher's Certificate to any person who takes a bachelor's, master's, or doctor's degree and satisfactorily completes the courses specified. By the terms of this act, the certificate given by the Regents "shall serve as a legal certificate of qualification to teach in any of the schools of this State, when a copy thereof shall have been filed or recorded in the office of the legal examining officer or officers of the county, township, city, or district."

### BUREAU OF APPOINTMENTS

A Bureau of Appointments is maintained for the purpose of assisting men and women who are studying, or have studied, in the University of Michigan, to secure positions as teachers. This service is performed gratuitously, in the interest of students of the University, past or present, and for superintendents of schools and boards of education wishing to employ teachers. Persons desiring to reach this Bureau should address their communications to the Secretary of the Bureau of Appointments. The regular annual enrollment takes place the second week in November.

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### FEES AND EXPENSES

*The Matriculation Fee and the Annual Fee must be paid in advance, and no student can enter upon his work until after such payment. For the rules governing Second Semester Fees and the refunding of fees, see page 136.*

**MATRICULATION FEE.** — For Michigan students, *ten dollars*; for all others, *twenty-five dollars*.

**ANNUAL FEE.** — For Michigan students, *eighty-five dollars* for men; *eighty dollars* for women; for all others, *one hundred ten dollars* for men; *one hundred five dollars* for women.

The fee for the second semester is sixty per cent of that for the entire year.



**PART TIME FEE.**—(a) Persons whose occupations are such as to afford them only a limited part of their time for study, but who are duly accredited for admission to any College or School of the University and who also give evidence of an interest in study wholly accordant with the purpose of the College or School to which they are accredited, may be admitted and may elect not more than five hours in any semester upon the payment of an annual fee of \$25.

(b) Such students, if entering the University for the first time, must also pay the usual matriculation fee and they must understand that the part-time fee of \$25 covers only the usual privileges of study and tuition. Michigan Union or Women's League membership, Outdoor Physical Education, and Health Service are not included.

**LATE REGISTRATION.**—Registration (i.e. enrollment, payment of fees, and classification) must be entirely completed before the first day of the semester. Students failing to complete their registration before the first day of each semester are required to pay a late registration fee of five dollars.

**GRADUATION FEE.**—For all alike, *ten dollars*.

**TEACHER'S DIPLOMA FEE.**—For all alike, *two dollars*.

**SPECIAL CERTIFICATE.**—For the special certificates in Journalism, Business Administration, and Geology, *two dollars*.

**LABORATORY DEPOSITS.**—Students who pursue laboratory courses in Chemistry, Bacteriology, and Hygiene are required to pay for the materials and apparatus actually consumed by them. The deposits required in advance range from one to twenty dollars. Otherwise no extra fee is charged for laboratory courses.

The laboratory deposit must in all cases be paid to the Treasurer of the University before the students may enroll in the class.

**GYMNASIUM FEE.**—For the rental of a locker in either Gymnasium a fee of two dollars is charged.

For additional information in regard to expenses, see page 134 of this Catalog.

# Courses of Instruction

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The Courses of Instruction are subject to change from time to time. From the courses offered in the various branches of learning, the student is allowed to make his choice, under regulations prescribed by the Faculty (see page 154).

The courses announced for the year 1923-1924 are described below. Those to be offered in 1924-1925 may be expected to differ but slightly from those described here. The amount of credit toward graduation assigned to each course is indicated by the expression, *one hour credit, two hours credit, etc.*

Immediately following the name of the department is stated the group in which the courses in that department fall in accordance with the requirements for graduation (see page 150).

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## COURSES IN OTHER SCHOOLS AND COLLEGES

OPEN, UNDER CERTAIN CONDITIONS, TO STUDENTS IN THE COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Certain courses, given in other Schools and Colleges of the University, may be elected by students in the College of Literature, Science, and the Arts. For the detailed description of such courses, see the Announcements of those Schools and Colleges.

Students in this College may elect courses in other Schools and Colleges of the University only by special permission of the Assistant Dean of this College. (See below.) Such permission is granted *pro forma* to students enrolled in programs (Business Administration, Forestry, etc.) whose curricula include courses outside the College. But students who relinquish such special programs forfeit the credit for extra-Collegiate courses they may have taken.

Courses in the Medical School or the Law School thus taken may not be counted towards the hours of Literary credit required for the Combined Curricula.

The only courses which may be elected without the special permission of the Dean are described in the following pages.

**Anatomy**

(See Medical Sciences)

**ANTHROPOLOGY**

(GROUP III)

During the second semester Col. T. C. HODSON, Late Assistant Political Agent in Manipur and Superintendent of the State, Fellow of the Royal Anthropological Institute, will be at the University as Special Lecturer in Anthropology. He will offer the following courses:

32. General Anthropology. *Two hours credit.* Lectures. Professor HODSON.

A survey of the physical characteristics of man, main ethnic elements, languages and their classification, social structure, economic and political organization, religious beliefs, the cycle of life, and group life at cultural levels.

A description will be given of the main features of present day or relatively recent conditions, with such historical and archaeological notes as may be necessary.

102. The Anthropology and Religions of India. *Two hours credit.* Professor HODSON.

In this course the outline of the general course will be followed in the main. Especial attention will be given to the relations of the lower cultures with the higher. The history of Indian religious development will be traced. The main tenets of Hinduism, Buddhism, Jainism, Islam, Sikhism, and Parsiism will be described and their contribution to religious thought estimated.

202. Special Area Study. Assam. *Three hours credit.* One lecture and two hours seminar each week. Professor HODSON.

A special course on the anthropology of Assam, which will acquaint the student with the methods pursued in an intensive regional study. All of the important groups will be discussed.

**Arabic**

(See Semitics)

**Aramaic**

(See Semitics)

**Assyrian**

(See Semitics)

## ASTRONOMY

### (Group II)

Courses 1, 2, 2a, 8 and 8a are intended to furnish a general knowledge of Descriptive Astronomy. These courses do not presuppose mathematical preparation beyond high school algebra and geometry.

Course 3 (or 3E) is a beginning course in Spherical and Practical Astronomy; Course 5, in Mathematical Astronomy; Course 9, in Astrophysics; Course 18, in Solar Physics; and Course 22, in Navigation. Courses 5, 9, and 18 presuppose a knowledge of Calculus.

**CONSULTATION HOURS.**—At the end of registration week, Saturday, September 20, Professor HUSSEY, or a representative, will be in his office at the Observatory, 9 to 12 A. M., to advise those desiring to elect courses in Astronomy.

#### FIRST SEMESTER

1. Descriptive Astronomy: The Solar System. *Three hours credit.* Professor CURTISS, and Assistant Professor RUFUS.  
A descriptive course, including the fundamental principles of Astronomy, and a presentation of the leading facts respecting the sun, moon, planets, and comets. Occasional lantern illustrations, with visits to the Observatory.
2. Descriptive Astronomy. Stars and Nebulæ. *Three hours credit.* Assistant Professor RUFUS.  
A general descriptive course in Stellar and Nebular Astronomy. Occasional lantern illustrations, with visits to the Observatory. This may be taken in connection with Course 1 or independently, as desired.
- 2a. Elementary Observational Astronomy. *One hour credit.* Assistant Professor ROSSITER.  
This may be taken in connection with Course 1, or 2, or 3E.
- 3E. Practical Astronomy. *Two hours credit.* Assistant Professors RUFUS and ROSSITER.  
The elements of General, Spherical, and Geodetic Astronomy, with practical applications. Theory of the determination of time, latitude, longitude, and azimuth.
4. Practical Astronomy. *Three hours credit.* Recitations and observatorial work at the Observatory. Assistant Professor ROSSITER.  
Studies in Spherical Astronomy. Theory of the meridian circle and equatorial and their use in observatorial work. Reduction of observations. Open to those who have had Trigonometry and Analytical Geometry.

5. Theoretical Astronomy. *Three hours credit.* Professor HUSSEY.  
The elements of Celestial Mechanics, and theory and practice in the determination of parabolic and elliptic orbits. This course presupposes a knowledge of integral calculus.
8. History of Astronomy. *Two hours credit.* Assistant Professor RUFUS.  
The history of Astronomy from the dawn of the science, treating especially of its modern development, its relation to the history of science in general, and its contribution to the progress of civilization. Open only to those who have had Course 1 or 2, or equivalents.
11. Variable Stars. *Two hours credit.* Professor CURTISS.  
Lectures at the University and observational studies of selected stars at the Observatory. A knowledge of Descriptive Astronomy is required.
12. Spectroscopic Binaries. *Two or three hours credit.* Professor CURTISS.  
Theory and practice in the determination of orbits from spectroscopic measurements of motion in the line of sight, and from photometric observations of variations in brightness. Calculus is required.
14. Advanced Mathematical Astronomy. Studies in continuation of Course 7 will be arranged for those qualified to take them. *Three hours credit.* Professor HUSSEY.
18. Solar Physics. *Two hours credit.* Assistant Professor RUFUS.  
A study of the methods and instruments used in modern solar research. Discussion of results of recent investigations. Lectures and collateral reading. Calculus and General Physics are required.
21. Advanced Physical Astronomy. *Credit to be arranged.* Professor CURTISS and Assistant Professor RUFUS.  
Studies in continuation of Courses 9 and 18 will be arranged for those qualified to take them.

#### SECOND SEMESTER

1. Descriptive Astronomy. The Solar System. *Three hours credit.* Assistant Professor RUFUS.  
A descriptive course, including the fundamental principles of Astronomy, and a presentation of the leading facts respecting the sun, moon, planets, and comets. Occasional lantern illustrations, with visits to the Observatory.
2. Descriptive Astronomy. Stars and Nebulae. *Three hours credit.* Professor CURTISS and Assistant Professor RUFUS.

- A general descriptive course in Stellar and Nebular Astronomy. Occasional lantern illustrations, with visits to the Observatory. This may be taken in connection with Course 1 or independently, as desired.
- 2a. Elementary Observational Astronomy. *One hour credit.* In addition to preparation, one laboratory period per week. Mr. ROSSITER.  
Constellation studies and telescopic examinations of the heavenly bodies. Selected problems with the celestial globe and the equatorial telescope. Observational work at the Observatory. To be preceded by Course 1, or to be taken in connection with Course 1, Course 2 or Course 2E.
- 3c. Practical Astronomy. *Two hours credit.* Assistant Professors RUFUS and ROSSITER.  
The elements of General, Spherical, and Geodetic Astronomy, with practical applications. The theory of the determination of time, latitude, longitude, and azimuth.
4. Practical Astronomy. *Three hours credit.* Observational work at the Observatory. Assistant Professor ROSSITER.  
Open to those who have had Trigonometry and Analytical Geometry.
6. Method of Least Squares. *Two hours credit.* Assistant Professor RUFUS.  
Theory of the error curve and of the combination of observational data according to the Method of Least Squares.
7. Advanced Theoretical Astronomy. *Three hours credit.* Professor HUSSEY.  
Definitive determination of orbits. Theory of Interpolation and Mechanical Quadrature. Special Perturbations. Open to those who have had Course 5.
- 8a. The History of Astronomy in America. *Two hours credit.* Assistant Professor RUFUS.  
A study of the progress of the science in the United States, dealing especially with contributions of American astronomers. For undergraduates who have completed Course 8, and for graduates.
9. Astrophysics. *Two hours credit.* Professor CURTISS.  
Introductory Course. General treatment of methods and results, having reference more particularly to stellar spectroscopy. Practice in the measurement and reduction of spectrographic plates will form a part of the course. A general knowledge of Physics, Astronomy, and Calculus is required.
12. Spectroscopic Binaries. *Two hours credit.* Professor CURTISS.  
Continued from the first semester.

## SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925.)

1s. Modern Astronomy. The Solar System. *Two hours credit.* Professor HUSSEY.

2s. Modern Astronomy. The Stars and Nebulæ. *Two hours credit.* Professor CURTISS.

3 or 3E. Practical Astronomy. *Two hours credit.* Assistant Professor RUFUS.

Graduate work, Courses 4, 5, 9, 12, 18, and 21.

## BOTANY

(Group II)

The department of Botany occupies the south side of the new Natural Science building. The easiest approach from the interior of the Campus is by the easterly one of the two south entrances.

Members of the Botanical staff may be consulted throughout the first semester at the hours and rooms designated:

Professor DAVIS, *W*, at 10, Room 303.

Professor BARTLETT, *M, W*, 11 to 11:30, Room 300.

Professor KAUFFMAN, *T, Th*, 11 to 12. Room B 403.

Assistant Professor EHLERS, *M* and *W*, 2 to 3, in Laboratory

B 309; *M, W*, 4 to 4:15, in Office B 310.

Assistant Professor TUPPER, *S*, 10 to 12, Room 302.

CONSULTATION HOURS. — Representatives of the Botanical staff will be in Room B 209, 10 to 12 daily, throughout registration week, for consultation with students.

*First semester freshman electives:* Courses 1, 1a.

*Second semester freshman electives:* For those with no college botany, Courses 1, 1a; for those with one semester of college botany, Courses 4, 26.

*Second year electives:* 3, 4, 5, 6, 7, 8, 11, 13, 14, 18, 25, 26.

*Upper class electives:* The course with other numbers than in the three foregoing classes require at least two years of college botany to precede. Other conditions will be found accompanying the descriptions of the individual courses.

1. Students having done a year's high school work in botany may be admitted to Course 1a.

2. Courses 1, or 1a, and 4 will give one considerable knowledge of plants in field and forest.

3. Those preparing for teaching in the secondary schools should take Courses 1 or 1a, 3, 4, 5, 6, 7 or 26, 8, 15 and 15a, 16, 18. No one can be considered for recommendation for teaching without Courses 1, 5, and 7 or 26.

4. Those preparing for professional forestry are advised to take Courses 1 or 1a, 13, 14, 17, 22, 23, 25, and 26.

5. Those preparing for professional work in plant pathology should take Courses 1 or 1a, 4, 5, 6, 7, 15, 19 and 20, 19a or 20a, and some problem in pathological research.

6. Those preparing for college positions should ordinarily plan to remain at the University for graduate study, in preparation for which Courses 1 or 1a, 3, 4, 5, 6, 7 or 26, 8, and 15 may be taken during the undergraduate years. These courses prepare the student to undertake a research problem in his chosen field early in his graduate study. Students should bear in mind that candidates for the higher degrees are required to have had at least eight hours work in cognate sciences, which are preferably taken before graduation.

7. Those desiring to prepare for civil service examinations for Government service in the U. S. Department of Agriculture should consult the members of the botanical staff.

#### FIRST SEMESTER

1. Elements of Botany. *Four hours credit.* One lecture, two recitations, and six hours laboratory work each week. Assistant Professor TUPPER, in charge of the course, with Professors DAVIS, and BARTLETT, Dr. GUSTAFSEN, and others.

A study will be made of the properties and activities of protoplasm, structure and function of leaves, stems, and roots, developmental history, evolution of structure and function, relation to environment, and the classification of forms into the groups which make up the plant kingdom. The course will begin with a study of the cell and cell structure of the higher plants and the relation of this structure to function. Then a series of plants will be studied from the simplest algae and fungi to liverworts, mosses, ferns, and seed plants.

This course is a prerequisite for all other courses in Botany except 1a. Course 1 is repeated and is open for general election the second semester.

- 1a. Elements of Cryptogamic Botany. Lectures, laboratory, and quiz. *Four hours credit.* Professor KAUFFMAN.

This course is taken in place of Botany 1 by those who have had a year of standard high school botany or its equivalent.

3. Microbiology of Soil, Water, and Food. *Two hours credit.* Lectures and laboratory work. Professor RABER.

A study of some of the more common organisms in our immediate environment, their identification and their relation to human welfare and industrial processes, organisms concerned in soil fertility, the fermentation industries, food preparation and preservation.

The course must be preceded by Botany 1 or 1a.



- 3a. Microbiology. Advanced Course. *Two or more hours credit.* Professor RABER.
5. Comparative Morphology of Plants. *Four hours credit.* Lectures and laboratory work. Professor DAVIS.  
Prerequisite: Botany 1 or 1a.  
A study of the morphology and life histories of representative types gives a basis for discussion of the relationships and the probable evolution of the chief groups of plants. The fungi receive a less proportionate degree of attention, since their structure and evolution is considered in Course 6.
- [7. Plant Physiology. *Four hours credit.* Lectures and laboratory work. Professor \_\_\_\_\_.  
This course is a study of the culture, nutrition, growth, reproduction, and behavior of plants.  
This course, or Course 26 in the second semester, is designed to follow Course 1 or 4, and to be taken in the second year, with Course 5.] These two courses are required to precede, except as specifically stated, all third and fourth year courses. Either Course 7 (Omitted in 1923-1924) or Course 26 fulfills the requirements in plant physiology.
- 7a. Experimental Physiology. Advanced Course. *Three or more hours credit.* Dr. GUSTAFSON.
13. Forest Botany. *Four hours credit.* Lectures, field and laboratory work. Assistant Professor EHLERS.  
This course must be preceded by Course 1 or 1a.  
The work of this course will consist of the study of the external morphology, the identification and classification, and the biology of the trees, shrubs, and herbaceous plants of the forest societies. By the requirement of field notes, and laboratory notes and drawings, students will have practice in the methods of descriptive botany and dendrology.
- 15 Genetics. *Three hours credit.* Professors SHULL and BARTLETT.  
This course gives a comprehensive view of the subjects of heredity and variation. The student is given an opportunity to become familiar with the general investigations in progress in both the departments of Zoölogy and Botany, as for example, sex determination in rotifers and insects, complicated Mendelian phenomena in *Drosophila*, mutation and hybridization phenomena in *Oenothera*, and practical plant breeding projects.  
Open to graduates and to qualified undergraduates. Students in sociology and prospective medical students who have had some training in biology will find that this course affords a basis for the understanding of human heredity.  
Courses 15 and 15a form a continuous year's work. Those who elect Course 15 should, if possible, elect Course 15a in the second semester of the same year.

17. Forest Mycology and Pathology. *Four hours credit.* Lectures, quizzes, field, and laboratory. Professor KAUFFMAN.

This course is primarily for students intending to study forestry. Special attention will be paid to those fungi causing diseases of trees and decay of wood.

19. Advanced Mycology and Pathology. Conferences, readings, field and laboratory work. *Three, five, or eight hours credit.* Professor KAUFFMAN.

This course deals with the special morphology, identification, and classification of fungi, and the study of their literature. It is necessary as a basis for research in fungi. It will be especially useful for students who wish to prepare for positions in State Experiment Stations or in the U. S. Department of Agriculture. It must be preceded by Course 6 or its equivalent, and should be followed by Courses 20, 49, and 50.

- 19a. Seminary in Mycology. *One hour credit.* Professor KAUFFMAN. Admission by permission of the instructor.

23. Agrostology. *Two or more hours credit.* Laboratory, field, and herbarium work, with conferences. Assistant Professor EHLERS.

A course in the study and identification of grasses and sedges, especially adapted to meet the needs of those preparing for the Government surveys of forests and grazing lands.

- [25. Phytogeography. Lectures and assigned reading. *Two hours credit.* Dr. C. D. LARUE.

This course deals with the factors which determine the geographical distribution of plants, and illustrates the different vegetation types of the earth. Special attention is given to the economic plants of tropical and temperate regions in relation to the factors which limit their cultivation.

Open to all students except freshmen.

Omitted in 1923-1924.]

- [27. Plant Cytology. *Four hours credit.* Lectures and laboratory. Professor DAVIS.

Prerequisites: Botany 5, 7, 8, and 15.

This course, together with Course 28, treats of the organization and behavior of protoplasm at critical periods in the life histories of plants. The work of the first semester includes a study of chromosome reduction and segregation in the process of pollen formation and in the development of the embryo sac, in their bearing on theories of heredity. Offered in alternate years.

Omitted in 1923-1924.]

29. Botanical Reading in French. *One hour credit.* Professor LEE.

31. Biochemistry of Plants. *Three hours credit.* Professor BARTLETT.  
 A survey of the compounds elaborated by plants, from the standpoint of plant physiology.  
 Prerequisites: Botany 7 or 26, 8 and organic chemistry. Offered in alternate years.
33. Current Literature of Botany. *No credit.* The second and fourth *Tu* of each month, 8 to 10 p. m. The staff of the department.  
 Course 33 constitutes a Journal Club in which important papers on Botany are reviewed and discussed by the instructors and advanced students. All students are admitted to the meetings, all advanced students and assistants are required to attend.
35. Investigations in Plant Physiology. *Three or more hours credit.* Dr. GUSTAFSON.
- [37. Investigations in the Physiology and Genetics of Disease Resistance in Plants. *Three or more hours credit.* Dr. C. D. LARUE.  
 Omitted in 1923-1924.]
39. Investigations in the Classification and Distribution of Special Groups of Flowering Plants. *Three or more hours credit.* Assistant Professor EHLERS.
- [41. Investigations in Physiology. *Three or more hours credit.* Professor ———.  
 Omitted in 1923-1924.]
- [43. Investigations in the Role of Fungi in Soil Biology. *Three or more hours credit.* Professor POLLOCK.  
 Omitted in 1923-1924.]
- [45. Investigations in the Bacterial Diseases of Plants. *Three or more hours credit.* Professor POLLOCK.  
 Omitted in 1923-1924.]
47. Investigations in Cytology and Genetics. *Three or more hours credit.* Professor DAVIS.
49. Investigations in Mycology and Pathology. *Three or more hours credit.* Professor KAUFFMAN.
51. Investigations in the Physiology of Reproduction in Algæ, Mosses, or Ferns. *Three or more hours credit.* Professor KAUFFMAN.
53. Investigations in Genetics and Biochemistry of Plants. *Three or more hours credit.* Professor BARTLETT.
53. Investigations in Genetics and Biochemistry of Plants. *Three or more hours credit.* Assistant Professor TUPPER.

SECOND SEMESTER

1. Elements of Botany. *Four hours credit.* Lectures, recitations, and laboratory work.

Professor DAVIS in charge of the course, with Professors BARTLETT and TUPPER, Dr. GUSTAFSON, and others.

- 2*p*. The Microscopy of Foods, Drugs, and Spices. *Three hours credit.* Lectures and laboratory work. Mr. MCGILL and assistants.

- 2*pa*. Advanced Microscopy of Foods, Drugs, and Spices. *Two or four hours credit.* Laboratory work. Mr. MCGILL and assistants.

This course is intended for those fitting themselves to be food or drug analysts.

4. Systematic Botany. *Three hours credit.* Lectures, laboratory, and field work. Assistant Professor EHLERS.

A study of the local flora, giving training in the technique of identification and classification of plants.

This course must be preceded by Course 1 or Course 1*a*.

6. Mycology and Pathology. Lectures, field and laboratory work. *Four hours credit.* Professor KAUFFMAN.

To be preceded or accompanied by Courses 1 or 1*a*, and 5, 7 or 26.

This course aims at a general introduction to the morphology, physiology, and classification of fungi, together with their artificial cultivation and their relation to disease. It is adapted to students in general botany, to teachers, and to those preparing to specialize in pathology. It should be followed by Courses 19 and 20.

8. Cell Structure, Tissue Differentiation, and Methods of Botanical Microtechnique. *Four hours credit.* Lectures and laboratory work. Professor DAVIS.

Prerequisite: Botany 1 or 1*a*; Courses 5 and 7 or 26 recommended to precede.

This course considers the structure and activities of the plant cell, and the principles of tissue development and differentiation. A feature of the laboratory work is practice in methods of fixing, staining, and sectioning of plant tissue. Offered in alternate years.

10. Principles and Practice in State and Federal Plant Inspection. Lectures, field, and laboratory work. *Three hours credit.* Professor KAUFFMAN.

To be preceded or accompanied by Course 6.

- [12. Microscopy of Potable and Polluted Waters. *Two hours credit.* Professor POLLOCK.

This course is primarily for students in sanitary engineering. It is intended to give a knowledge of the organisms frequently found in water supplies, giving them bad tastes or odors, as well as a knowledge of those organisms which are concerned in the purification of polluted waters or of sewage. Students will learn to recognize the commoner organisms concerned in these processes, and to understand how their biological activities are related in pollution and purification.

Omitted in 1923-1924.]

14. Forest Botany. Continuation of Course 13. *Four hours credit.* Lectures, field and laboratory work. Assistant Professor ELLERS.

The first part of the semester will be spent in the study of the development, structure, and function of the tissues of woody plants. The last part of the semester will resume the outdoor study of forest plants.

- 15a. Genetics. *Three hours credit.* Professors SHULL and BARTLETT. A Continuation of Course 15.

- [16. Observation and Methods in the Teaching of Botany. *Two hours credit.* Professor POLLOCK.

Lectures, laboratory, field trips, conferences, reports, and discussions of observations. A course for prospective teachers in botany. Twenty hours of observation of Botany teaching in the Ann Arbor High School.

In the conference hour there will be considered: The laboratory and its equipment; the educational value of the natural sciences, and a course of study for Botany. A detailed outline for a number of field trips will be worked out, and phases of botany especially valuable as a basis for agriculture and forestry will be indicated.

For the Teacher's Diploma, the course must also be preceded by ten hours in the department of Education.

Open to all who have fulfilled the minimum requirements for the Teacher's Recommendation.

Omitted in 1923-1924. To be offered in 1924-1925.]

18. The Biology of the Fresh Water Algæ. Lectures, field and laboratory. *Three hours credit.* Professor KAUFFMAN.

This course deals with the special morphology, the biological significance, and the classification of the fresh water algæ. To be preceded by Botany 5, and 7 or 26. Offered in alternate years.

20. Advanced Mycology and Pathology. Conferences, readings, field and laboratory work. *Three, five, or eight hours credit.* Professor KAUFFMAN.

See Course 19, of which this may be made a continuation.

20a. Seminary in Mycology. *One hour credit.* Professor KAUFFMAN. Admission only by permission of the instructor.

22. Comparative Anatomy of Vascular Plants. *Three or five hours credit.* Assistant Professor TUPPER.

Prerequisites: Botany 4 and 5, or 13 and 14.

A comparative study of the internal structure of the higher plants, with emphasis upon the characters of value in identification, classification, and wood technology. Of especial value to advanced students in forestry who are interested in the microscopic identification of commercial woods.

[24. Introduction to Paleobotany. *Three hours credit.* Professor BARTLETT and Assistant Professors TUPPER and G. M. EHLERS.

This course is the same as Course 11 in Geology. It is offered jointly by the department of Geology and Botany, and is designed to train the student in determining the relationships of fossil plants from their external and internal morphology. The laboratory exercises will deal chiefly with forms which are significant in stratigraphic geology. The course as a whole is designed to follow and supplement Geology 10. It will likewise serve as an introduction to Botany 30. For credit in botany, this course must be preceded by Courses 1 and 5 or 14. To be given in alternate years. Omitted in 1923-1924.]

26. Experimental Physiology. *Four hours credit.* Lectures and laboratory work. Dr. GUSTAFSON.

A study of the phenomena of nutrition, growth, and irritability in plants.

To be preceded by at least one semester of college botany. This is equivalent to Course 7, and is not open to students who have passed Course 7.

26a. Experimental Physiology. Advanced course. *Three or more hours.* Dr. GUSTAFSON.

[28. Plant Cytology, continued. *Four hours credit.* Lectures and laboratory work. Professor DAVIS.

A continuation of the field of study opened by Course 27, and requiring that course as a prerequisite. During the second semester the lectures consider such subjects as spermatogenesis, oögenesis, fertilization, apogamy, apospory, alternation of generations, determination of sex, xenia, hybridization, etc. The laboratory work illustrates certain features of the lecture program. Offered in alternate years. Not to be given in 1922-1923.]

30. Geological History of Plants. Lectures, assigned reading, and demonstrations. *Two hours credit.* Professor BARTLETT and Assistant Professor TUPPER.

A survey of the literature of paleobotany and a summary of the evidences with regard to the phylogeny of the plant groups. Students will be given an opportunity to become acquainted with the technique used in the investigation of the minute structure of coal and other plant fossil material. To be preceded by Botany 4 and 5. Offered alternately with Botany 24. To be given in 1922-1923.

34. Current Literature of Botany. Continuation of Course 33. *No credit.* The second and fourth *Tu* of each month. The staff of the department.

- [36. Physiology and Genetics of Disease Resistance in Plants. Conferences, readings, field, and laboratory work. *Two or four hours credit.* Dr. LARUE.

In this course the nature of disease resistance in plants and the manner of its inheritance are considered. Methods in breeding for disease resistance are given special attention. The course is intended primarily for students specializing in plant pathology, or in genetics and plant breeding. It must be preceded by Course 15 and must be preceded, or accompanied by Course 6.

Omitted in 1923-1924.]

38. Botanical Readings in German. *One hour credit.* Professor LEE.  
40. Investigations in Plant Physiology. *Three or more hours credit.* Dr. GUSTAFSON.

- [42. Investigations in the Physiology and Genetics of Disease Resistance in Plants. *Three or more hours credit.* Dr. C. D. LARUE.

Omitted in 1923-1924.]

44. Investigations in the Classification and Distribution of Special Groups of Flowering Plants. *Three or more hours credit.* Professor EHLERS.

- [46. Investigations in Physiology. *Three or more hours credit.* Professor ———.

Omitted in 1923-1924.]

- [48. Investigations in the Role of Fungi in Soil Biology. *Three or more hours credit.* Professor POLLOCK.

Omitted in 1923-1924.]

- [50. Investigations in the Bacterial Diseases of Plants. *Three or more hours credit.* Professor POLLOCK.

Omitted in 1923-1924.]

52. Investigations in Cytology and Genetics. *Three or more hours credit.* Professor DAVIS.

54. Investigations in Mycology and Pathology. *Three or more hours credit.* Professor KAUFFMAN.

56. Investigations in the Physiology of Reproduction in Algæ, Mosses, or Ferns. *Three or more hours credit.* Professor KAUFFMAN.
58. Investigations in Genetics and Biochemistry of Plants. *Three or more hours credit.* Professor BARTLETT.
60. Investigations in Plant Anatomy. *Three or more hours credit.* Assistant Professor TUPPER.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925.)

*For Undergraduates.*

1. Elements of Botany. *Four hours credit, or one unit for entrance.* Assistant Professor TUPPER, and assistants.
45. Systematic Botany and Field Studies. *Two hours credit.* Dr. GUSTAFSON, and assistant.

*For Graduates and Undergraduates.*

- 44s. Systematic Botany and Field Studies. *Two or more hours credit.* Dr. GUSTAFSON.
- 27s. Plant Cytology. *Four hours credit.* Professor DAVIS, and assistant.
- 15s. Genetics. *Two hours credit.* Professor DAVIS.
- 26a. Plant Physiology. *Four hours credit.* Dr. GUSTAFSON, and assistant.

*For Graduates.*

- 35s. Research in Plant Physiology. *Credit to be arranged.* Dr. GUSTAFSON.
47. Investigations in Cytology and Genetics. *Credit to be arranged.* Professor DAVIS.

Biological Station, 1924

102. Taxonomy of Green Cryptogams. *Two hours credit.* Professor NICHOLS.
- 102b. Taxonomy of the Bryophytes. *Two hours credit.* Professor NICHOLS.
104. Systematic Botany. *Two hours credit.* Assistant Professor EHLERS.
106. Ecology. *Four hours credit.* Professor GATES.
108. Plant Anatomy. *Two hours credit.* Dr. SEIFRIZ.
110. Advanced Systematic Botany. *Two hours credit.* Assistant Professor EHLERS.



112. Special and Research Work in Botany. *Two, four, six, or eight hours credit.* Professors GATES and NICHOLS, Assistant Professor EHLERS, and Dr. SEIFRIZ.

114. Plant Geography. *Two hours credit.* Dr. SEIFRIZ.

### **Business Administration**

(See Economics)

### **CHEMISTRY**

(Group II)

Students who expect to specialize in Chemistry are urged to follow, as far as possible, the sequence of studies in chemistry and related subjects as given in the "Curriculum in Chemistry." A special bulletin describing this curriculum may be obtained from the Registrar or from the Director of the Chemical Laboratory, Room 220, Chemistry Building.

The courses numbered 1 to 12 give work upon the foundation of chemistry in its several diversions. A sufficient number of these courses must be completed before entering upon the advanced studies of the science, or its special application to the industries and professions. Of the more advanced studies, Courses 13 to 26, inclusive, are in General, Inorganic, and Physical Chemistry; Courses 27 to 40, inclusive, in Analytical Chemistry; Courses 41 to 50, inclusive, in Organic Chemistry; Courses above 50, in Industrial and Engineering Chemistry. Other courses\* in Technical Chemistry are announced by the department of Chemical Engineering.

**CONSULTATION HOURS.**—Throughout registration week, Assistant Professor McALPINE will be in Room 406 Ch., 10-12, daily, to advise those desiring to elect courses in chemistry.

#### **FIRST SEMESTER**

#### **Foundation Courses in Chemistry:**

1. General and Inorganic Chemistry. *Four hours credit.* Deposit, \$10. Lectures, recitations, and laboratory. Professor BIGELOW, Mr. TRIMBLE, and assistants.

Students electing Course 1 are expected to elect Course 2 the following semester, as these form one complete whole and should properly be considered one course extending throughout the year. All elections, including those of upperclassmen, must be made through the classification committee.

- 1b. General and Inorganic Chemistry. *Four hours credit.* Deposit, \$10. Lectures, recitations, and laboratory. Professor LICHTY and assistants.

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\* Election of these other courses is subject to the rule governing the election of studies in other colleges.

Students electing Course 1*b* are expected to elect Course 2 the following semester. All elections, including those of upperclassmen, must be made through the classification committee.

- 2*b*. General and Inorganic Chemistry. *Four hours credit.* Deposit, \$10. Lectures, recitations, and laboratory. Professor SMEATON, Dr. WEATHERILL, and assistants.

This course is for students who have had chemistry, but not the full equivalent of Courses 1 and 2. An examination will be held within the first four weeks and those considered inadequately prepared will be transferred to Course 1. All elections, including those of upperclassmen, must be made through the classification committee.

- 2*E*. General and Inorganic Chemistry. *Five hours credit.* Deposit, \$10. Lectures, recitations, and laboratory. Dr. HODGES and assistants.

Course 2*E* is required of all first year students in the College of Engineering who have presented entrance chemistry. Others may elect the course only by special permission.

3. Qualitative Analysis. *Five hours credit.* Deposit, \$10. Assistant Professors CARNEY and MCALPINE.

Students who have completed Course 2 or 2*b*, with the grade D may not elect Course 3. Students who may not elect Course 3 must elect Course 3*a*, and follow this with 3*b*, before taking Course 5.

- 3*a*. Qualitative Analysis. *Four hours credit.* Deposit, \$10. Mr. COLE and Mr. SOULE.

Course 3*a* is not a complete course in itself, and it must be followed by 3*b* before higher courses in Analytical Chemistry are taken. Course 3*a* must be preceded by 2 or 2*b*.

- 3*b*. Qualitative Analysis. *Four hours credit.* Deposit, \$10. Mr. COLE.

Laboratory work, two half days a week, to be arranged after consultation with the instructor. Course 3*b* must be preceded by 3*a*.

5. Quantitative Analysis. Beginning Course. *Five hours credit.* Deposit, \$20. Professor WILLARD and Assistant Professor MELOCHE.

This course includes the theory and practice of gravimetric and volumetric analysis and gravimetric separations.

Course 5 must be preceded by Course 3 or 3*b*.

7. Organic Chemistry. *Five hours credit.* Deposit, \$20. Lectures, recitations, and laboratory work, *two half days a week.* Professor GOMBERG, Assistant Professor SCHOEFFLE, Dr. SNOW, Dr. BLICKE, and Mr. TABERN.

All students electing Course 7 should elect Course 7a in the following semester, the two courses being considered as a single course extending through the year. These courses are intended for students who are specializing in Chemistry or Chemical Engineering. All graduate students who elect organic chemistry as either the major or a minor subject should take Courses 7 and 7a, and not Course 10.

Course 7 must be preceded by Course 3 or 3b.

- 7a. Organic Chemistry. Continuation of Course 7. *Five hours credit.* Deposit, \$20. Lectures and recitations. Dr. SNOW.  
Laboratory work as announced under Course 7.

10. Organic Chemistry. *Four hours credit.* Lectures and recitations. Dr. BLICKLE.

This course is intended for students preparing to enter the Medical School, and for students who desire a shorter and more elementary course than Courses 7 and 7a. Given both semesters. Course 10 must be preceded by Course 3 or 3a.

#### General and Physical Chemistry:

- 8E. Elementary Theoretical and Physical Chemistry. *Three hours credit.* Lectures and recitations. Professor BARTELL.

This course is intended for students in Chemical Engineering and may be taken by others only by special permission. Special attention will be paid to the study of chemical equilibrium, velocity of chemical reactions, and applications of physico-chemical theory.

This course must be preceded by Chemistry 3 or 3b, and Physics 2. A knowledge of calculus is also required.

13. Physical-Chemical Measurements. *Three to eight hours credit.* Deposit, \$10. Laboratory work. Professor BARTELL, Assistant Professor FERGUSON, Mr. CASE, and assistants.

The work of this course includes molecular weight determinations by vapor density, freezing point, and boiling point methods; determination of velocity of chemical reaction, viscosity, surface tension, solubility, etc.; optical measurements with refractometer, polarimeter, and spectroscope; electrical measurements such as conductivity, transport numbers, and electromotive force, including work with the hydrogen electrode.

The eight hours which are required for the completion of all the work in Course 13 may be divided between two semesters. The course must be preceded or accompanied by Courses 5 and 8.

14. Electrochemistry. *Two hours credit.* Lectures. Assistant Professor FERGUSON.

This course constitutes an elementary treatment of the fundamental principles of the subject. The course must be preceded by Physics 2, and must be preceded or accompanied by Course 8, or its equivalent.

Courses 14, 14a, 14b, and 14c are designed to meet the rapidly increasing demand, by the electrochemical industries, for men who have a knowledge of the principles of electrochemistry and their application to industrial processes.

- 14a. Electrochemistry. Deposit, \$5. *Two hours.* Laboratory. Assistant Professor FERGUSON.

This course must be preceded or accompanied by Course 14 or its equivalent. It includes experiments to illustrate the general principles of electrochemistry, such as measurements of electrical conductivity, resistance of primary and secondary cells, current by means of coulometers, single electrode and decomposition potentials, overvoltage, transport numbers, electromotive force; use of the hydrogen electrode; and methods of electrochemical analysis.

15. History of Chemistry and Development of Chemical Theory. *Two hours credit.* Lectures and seminary. Professor SMEATON.

16. Laboratory Research in Inorganic Chemistry. Deposit, \$5. *Credit to be arranged.* Professors BIGELOW, LICHTY, and SMEATON, Dr. HODGES, and Dr. WEATHERILL.

18. Laboratory Research in Physical Chemistry. Deposit, to be arranged. *Credit to be arranged.* Professors BIGELOW, SMEATON, and BARTELL, Assistant Professor FERGUSON, Dr. HODGES, and Dr. WEATHERILL.

Courses 16 and 18 are intended for advanced students. They are open only to persons who receive permission from the instructor. Students electing these courses must be able to read French and German, and must have a knowledge of inorganic, organic, and analytical chemistry.

19. Seminary in Physical Chemistry. Lectures and reading. *One or two hours credit.* Professor BIGELOW.

This course is intended for students engaged in research work and can be elected only by special permission.

- 19a. Seminary in Physical Chemistry. Reading and discussions. *Two hours credit.* Assistant Professor FERGUSON.

Current journal articles and recent books pertaining to electrochemistry, and primarily to applications of electrochemical methods in the chemistry of colloids and biochemistry, will be the topics considered.

This course is for students engaged in research and may be elected only by special permission.

20. German Reading. *Two hours credit.* Professor LEE.

The object of this course is to familiarize the student with the technical terms used in German chemical literature. Classical treatises as well as important articles in current German chemical journals will be read. Elect as German 9E.

21. Advanced Theoretical and Physical Chemistry. *Two hours credit.* Professor BIGELOW.

This course is a continuation of Course 8. It includes discussions of recent discoveries and theories concerning atomic and sub-atomic phenomena and some applications of thermodynamics to chemistry, in more detail than is possible in Course 8.

22. Spectroscopic Analysis and Use of the Spectroscope. *Two hours credit.* Lectures and laboratory. Professor LIGHTY.  
Course 22 must be preceded by Course 3a.

**Analytical Chemistry:**

28. Advanced Quantitative Analysis. *Four or five years credit.* Deposit, \$20. Lectures, quiz, and laboratory. Professor WILLARD.

This course includes the analysis of coals, alloy steels, iron ores, silicates, and unknown minerals or alloys. If elected for four hours, the remaining hour, which makes up the complete course, may be elected at another time.

Course 28 is open to those who have taken Course 5, and Course 2 in Physics.

29. Elementary Chemical Microscopy. The Use of the Microscope in Chemistry. *Two hours credit.* Laboratory work. Assistant Professor CARNEY.

31. Special Problems in Quantitative Analysis. Laboratory work. *Five hours credit.* Deposit, \$20. Professor WILLARD.

The work in this course deals with the less common elements and with more difficult separations than are encountered in the preceding courses.

Prerequisite: Five hours of Course 28.

32. Physico-Chemical Methods in Analysis. *Two hours credit.* Deposit, \$15. Lectures, quiz, and laboratory. Professor WILLARD.

This course includes work with the nephelometer, hydrogen electrode, indicators, electrometric titration apparatus, etc.

This course must be preceded by Chemistry 28, and a course in electrical measurements is desirable.

34. Chemical Reading. Reading and seminary work. *One hour credit.* Professor CAMPBELL.

This course is adapted to students who intend to carry on research such as given in Courses 36 or 37. As not more than five can be accommodated, permission should be obtained before electing the course.

36. Research in Inorganic Chemistry. Special attention will be given to the chemical constitution of metals, silicates, or other substances of importance. *Credit to be arranged.* Deposit, to be arranged. Professor CAMPBELL.

Course 36 must be preceded by Course 28, and by such courses in physical or organic chemistry as may be necessary to prepare the student to carry on the work satisfactorily.

37. Original Investigation in Analytical Chemistry. Laboratory work. *Credit to be arranged.* Deposit, to be arranged. Professors CAMPBELL and WILLARD.

Course 37 must be preceded by Course 28 and by such courses in physical or organic chemistry as may be necessary to prepare the student to carry on the work satisfactorily.

#### **Organic Chemistry:**

42. Organic Chemistry. *Two hours credit.* Deposit, \$20. Dr. SNOW.  
Course 42 must be preceded or accompanied by Course 10.

43. Advanced Organic Chemistry and Ultimate Analysis. Laboratory work and reading. *Two to five hours credit.* Deposit, \$20. Professor GOMBERG, Assistant Professor SCHOEFFLE, and Dr. BLICKE.

Course 43 must be preceded by Courses 7 and 7a.

- 44a. Food and Drug Analysis. *Three to five hours credit.* Deposit, \$15. Laboratory work with reference reading. Mr. MCGILL.  
Course 44a must be preceded by Courses 5 and 7.

45. Advanced Organic Chemistry. Lectures and reading. *Two hours credit.* Assistant Professor SCHOEFFLE.  
Special attention will be given to the chemistry and manufacture of intermediates and dyes, and to theories of color and constitution.

Course 45 must be preceded by Courses 7 and 7a.

49. Research in Organic Chemistry. Laboratory work and reading. *Credit to be arranged.* Deposit, \$20. Professor GOMBERG and Assistant Professor SCHOEFFLE.

Course 49 can be elected only by special permission.

#### **Industrial and Engineering Chemistry:\***

[For details of courses, see Special Engineering Announcement.]

51. Engineering Materials. Lectures and recitations. *Three hours credit.* Professor A. H. WHITE.

An elementary study of the manufacture and properties of the ferrous and non-ferrous alloys, cements, clay products, and protective coatings.

This course must be preceded by Chemistry 2, 2b, or 2E.

52. Fuels and their Utilization. Lectures and recitations. *One hour credit.* Mr. BROWN.

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\* Other courses in Technical Chemistry are announced by the department of Chemical Engineering. Election of these other courses is subject to the rule governing the election of studies in other Colleges.

A descriptive study of fuels and their combustion, either directly or after conversion into gas or coke, and of regenerative furnaces and the means of obtaining high temperatures.

This course must be preceded or accompanied by Course 3, and Course 2 in Physics.

54. Salts, Acids, and Alkalies. Lectures and recitations. *Two hours credit.* Assistant Professor BAKER.

A descriptive study of the evaporation of salts and their separation from one another by fractional crystallization, of the manufacture of sulphuric, nitric, and hydrochloric acids, of the manufacture of alkali and chlorine by the older chemical processes and by electrolytic processes, together with consideration of some other electrolytic and electrothermal processes.

Course 54 must be preceded by Course 8 or 8E and 52, and by Course 2 in Physics.

55. The Industrial Chemistry of Organic Compounds. *Four hours credit.* Lectures and assigned reading. Professor LESLIE.

Among the subjects treated are: starch, glucose, and sugar; fermentation and distillation; fats, oils, and soaps; bleaching and dyeing; tanning; paper manufacture.

Course 55 must be preceded by Courses 7, 7a, and 52. Course 54 is advised.

59. Technical Gas Analysis, including Calorimetry and Photometry. *Two to three hours credit.* Deposit, \$5. Laboratory work. Mr. GENIESSE and Mr. CARR.

Course 59 must be preceded or accompanied by Course 5.

#### SECOND SEMESTER

#### Foundation Courses in Chemistry:

- 1b. General and Inorganic Chemistry. *Four hours credit.* Deposit, \$10. Lectures, recitations, and laboratory. Professor LICHTY.

This course is the same as Course 1b given the first semester. It offers an opportunity for those entering the University at the opening of the second semester to commence the study of chemistry. Special permission must be obtained from the instructor in order to elect this course.

2. General and Inorganic Chemistry. Continuation of Course 1, the hours and credits being the same in both semesters. Deposit, \$10. Professor SMEATON, Mr. TRIMBLE, and assistants.
- 2E. General and Inorganic Chemistry. Same as 2E the first semester. Deposit, \$10. Dr. HODGES and assistants.
3. Qualitative Analysis. *Five hours credit.* Deposit, \$10. Assistant Professors CARNEY and MCALPINE.

Students who have completed Course 2 or 2*b* with the grade D may not elect Course 3. Students who may not elect Course 3 must elect Course 3*a*, and follow this with 3*b*, before taking Course 5.

- 3*a*. Qualitative Analysis. *Four hours credit.* Deposit, \$10. Mr. COLE and Mr. SOULE.

Course 3*a* is not a complete course in itself and it must be followed by 3*b* before higher courses in Analytical Chemistry are taken.

Course 3*a* must be preceded by 2 or 2*b*.

- 3*b*. Qualitative Analysis. *Four hours credit.* Deposit, \$10. Mr. COLE.

Laboratory work, two half days a week, to be arranged after consultation with the instructor. Course 3*b* must be preceded by Course 3*a*.

5. Quantitative Analysis. Beginning Course. *Five hours credit.* Deposit, \$20. Professor WILLARD and Assistant Professor MELOCHE.

This course includes the theory and practice of gravimetric and volumetric analysis and gravimetric separations.

Course 5 must be preceded by Course 3 or 3*b*.

6. Inorganic Preparations. *Three to seven hours credit.* Deposit, \$10. Professor LICHTY.

Students electing this course must have completed Course 3*a*.

Course 6 involves the study of chemical reactions and principles as they apply to the preparation of the commonly used chemicals; a study of the properties of these chemicals, the conditions under which they remain in solution, if they are soluble, and their uses in chemical operations and as illustrative materials in teaching.

7. Organic Chemistry. *Five hours credit.* Deposit, \$20. Lectures, recitations, and laboratory work. Dr. BLICKE and Dr. SNOW.

- 7*a*. Organic Chemistry. Continuation of Course 7. *Five hours credit.* Deposit, \$20. Lectures, recitations, and laboratory work. Professor GOMBERG, Assistant Professor SCHOEPFLE, Dr. SNOW, Dr. BLICKE, and Mr. TABERN.

8. Elementary Theoretical and Physical Chemistry. *Four hours credit.* Lectures. Professor BIGELOW and Dr. WEATHERILL.

This course must be preceded by Course 3 or 3*b*. It may be elected by students planning to take the seven-year Combined Literary-Medical Curriculum, on the completion of Course 3*a*. Physics 2 is strongly recommended.

9. Inorganic Chemistry. Descriptive and experimental lectures, including selected topics. *Three hours credit.* Lectures and recitations. Professor LICHTY.



Course 9 must be preceded by Course 3 or 3a or an equivalent. This course is intended for those students who need or desire a brief review and coordination as well as considerable extension of the work already done in General and Inorganic Chemistry.

10. Organic Chemistry. *Four hours credit.* Lectures and recitations. Assistant Professor SCHOEFFLE.

Course 10 must be preceded by Course 3a or 3b.

This course is intended for students preparing to enter the Medical School and for students who desire a shorter and more elementary course than Courses 7 and 7a. Given both semesters.

**General and Physical Chemistry:**

13. Physical Chemical Measurements. *Three to eight hours credit.* Deposit, \$10. Laboratory work. Professor BARTLELL, Assistant Professor FERGUSON, Mr. CASE, and assistants.

The work of this course includes: molecular weight determinations by vapor density, freezing point, and boiling point methods; determination of velocity of chemical reaction, viscosity, surface tension, solubility, etc.; optical measurements with refractometer, polarimeter, and spectroscope; electrical measurements such as conductivity, transport numbers, and electromotive force, including work with the hydrogen electrode.

The eight hours which are required for the completion of all the work in Course 13 may be divided between two semesters.

The course must be preceded or accompanied by Courses 5 and 8.

- 14b. Applied Electrochemistry. *Two hours credit.* Lectures. Assistant Professor FERGUSON.

This course must be preceded by Course 14 or its equivalent.

A study of the application of the principles of electrochemistry to analytical and industrial processes.

- [14c. Applied Electrochemistry. Laboratory. *Two hours credit.* Assistant Professor FERGUSON.

This course must be preceded or accompanied by Course 14b.

The course includes practice in electro-deposition of metals, electrolytic oxidation and reduction processes, preparation by electrical means of inorganic and organic compounds and preparations requiring the electric furnace.

Omitted in 1923-1924.]

- [14d. Advanced Electrochemistry. *Two hours credit.* Lectures. Assistant Professor FERGUSON.

This course is a continuation of Course 14 and follows up the development of the theory of electrochemistry in more detail than is possible in Course 14.

Omitted in 1923-1924.]

15. History of Chemistry and Development of Chemical Theory. *Two hours credit.* Lectures and seminary. Professor SMEATON.
16. Laboratory Research in Inorganic Chemistry. *Credit to be arranged.* Deposit, to be arranged. Professors BIGELOW, LIGHTY, and SMEATON, Dr. HODGES, and Dr. WEATHERILL.
18. Laboratory Research in Physical Chemistry. *Credit to be arranged.* Deposit to be arranged. Professors BIGELOW, SMEATON, and BARTELL, Assistant Professor FERGUSON, Dr. WEATHERILL, and Dr. HODGES.

Courses 16 and 18 are intended for advanced students. They are open to persons who receive special permission from the instructor. Students electing these courses must be able to read French and German, and must have a knowledge of inorganic, organic, and analytical chemistry.

19. Seminary in Physical Chemistry. Lectures and reading. *One or two hours credit.* Professor BIGELOW.

This course is intended for students engaged in research work and can be elected only by special permission.

- 19a. Seminary in Physical Chemistry. Reading and discussion. *Two hours credit.* Assistant Professor FERGUSON.

Current journal articles and recent books pertaining to electrochemistry, and primarily to the applications of electrochemical methods in the chemistry of colloids and biochemistry, will be the topics considered.

This course is for students engaged in research and may be elected only by special permission.

- 20a. Chemical Reading in French. *Two hours credit.* Professor LEE.  
This course is of the same nature as Course 20, Chemical Reading in German. Elect as French 9E.

23. Advanced Theoretical and Physical Chemistry. *Two hours credit.* Professor BARTELL.

This course is a continuation of Course 8 (or 8E). Special attention is given to velocity of chemical reactions and chemical equilibria in both homogeneous and heterogeneous systems. The work includes a study of the principles of thermochemistry, applications of the phase rule and a brief survey of recent advances in the field of Physical Chemistry.

24. Theory and Practice of Exact Measurements, with laboratory practice and calibration, and construction of apparatus. One lecture and one or two laboratory periods. *Two or three hours credit.* Deposit, \$5. Dr. WEATHERILL.

Special permission must be obtained from the instructor in order to elect this course.

25. **Chemistry of Colloids.** *Two hours credit.* Professor BARTELL. This course is intended primarily for advanced students specializing in Chemistry and Bio-Chemistry. It must be preceded by the fundamental courses in physics and chemistry, and is open only to those obtaining permission from the instructor.
26. **Actinochemistry.** *One or two hours credit.* Lectures, seminary, and laboratory work, *one three-hour period, to be arranged.* Deposit, \$5. Dr. HODGES. This course will deal with the relations between radiant energy and chemical reaction, particular attention being paid to the photographic process. The laboratory work will deal largely with the processes of photography. It must be preceded by Course 8.

**Analytical Chemistry:**

- [27. **Chemistry of the Rarer Elements.** *One hour credit.* Assistant Professor CARNEY. A study of the occurrence, reactions, analytical determination, and uses of the rarer elements, especial attention being paid to those of commercial importance. Lectures and recitations. Omitted in 1923-1924.]
28. **Advanced Quantitative Analysis.** *Four or five hours credit.* Deposit, \$20. Lectures, quiz, and laboratory. Professor WILLARD. This course includes the analysis of coals, alloy steels, iron ores, silicates, and unknown minerals or alloys. If elected for four hours, the remaining hour, which makes up the complete course may be elected at another time. Course 28 is open to those who have taken Course 5, and Course 2 in Physics.
29. **Elementary Chemical Microscopy.** The Use of the Microscope in Chemistry. *Two hours credit.* Laboratory work. Assistant Professor CARNEY.
30. **Library Methods in Chemistry.** *Two hours credit.* Mr. COLE. This course is primarily intended to familiarize students with the Chemical Library and its use, in order to facilitate their advanced work in chemistry. Specific problems in chemistry will be assigned and the student will be expected to look up and report upon the original literature bearing upon them. Course 30 must be preceded by Course 3 or 3a.
31. **Special Problems in Quantitative Analysis.** Laboratory work. *Five hours credit.* Deposit, \$20. Professor WILLARD. The work in this course deals with the less common elements and with more difficult separations than are encountered in the preceding courses. Prerequisite: Five hours of Course 28.

34. Chemical Reading. Reading and seminary work. *One hour credit.* Professor CAMPBELL.  
Course 34 requires special permission.
35. Gas Analysis. *Two hours credit.* Deposit, \$10. Lectures, quiz, and laboratory. Assistant Professor MELOCHE.  
Prerequisite: Four hours of Course 28.
36. Research in Inorganic Chemistry. Special attention will be given to the chemical constitution of metals, silicates, or other substances of importance. *Credit to be arranged.* Deposit, to be arranged. Professor CAMPBELL.  
Course 36 must be preceded by Course 28 and such courses in physical or organic chemistry as may be necessary to prepare the student to carry on the work satisfactorily.
37. Original Investigation in Analytical Chemistry. Laboratory work. *Credit to be arranged.* Deposit, to be arranged. Professors CAMPBELL and WILLARD.  
Course 37 must be preceded by Course 28 and such courses in physical or organic chemistry as may be necessary to prepare the student to carry on the work satisfactorily.

**Organic Chemistry:**

42. Organic Chemistry. *Two hours credit.* Deposit, \$20. Laboratory work. Mr. TABERN.  
Course 42 must be preceded or accompanied by Course 10.
- 42a. Organic Chemistry. Continuation of Course 42. *Two hours credit.* Deposit, \$20. Laboratory work.
43. Advanced Organic Chemistry and Ultimate Analysis. Laboratory work and reading. *Two to five hours credit.* Deposit, \$20. Professor GOMBERG and Assistant Professor SCHOEFFLE.
44. The Chemistry of Alkaloids. *Four hours credit.* Deposit, \$15. Lectures and laboratory work. Mr. MCGILL.  
Course 44 must be preceded by Courses 5 and 7.
- 44a. Food and Drug Analysis. *Three to five hours credit.* Deposit, \$15. Laboratory work with reference reading. Mr. MCGILL.  
Course 44a must be precluded by Courses 5 and 7.
46. Seminary in Organic Chemistry. Lectures and reading. *Two hours credit.* Professor GOMBERG.  
This course is intended primarily for students engaged in research work in organic chemistry, and can be elected only by special permission.
47. Advanced Organic Chemistry. Lectures and reading. *Two hours credit.* Dr. SNOW.  
Special attention will be given to the synthesis of certain organic compounds of importance in the chemical industries.  
Course 47 must be preceded by Courses 7 and 7a.

49. Research in Organic Chemistry. Laboratory work. *Credit to be arranged.* Deposit, to be arranged. Professor GOMBERG and Assistant Professor SCHOEPPLE.  
Course 49 requires special permission.

**Industrial and Engineering Chemistry:\***

(For details of course, see Engineering Announcement.)

51. Engineering Materials. The same as Course 51, given the first semester. Professor A. H. WHITE.  
52. Fuels and their Utilization. The same as Course 52, given the first semester. Mr. BROWN.  
54. Salts, Acids, and Alkalies. The same as Course 54, given the first semester. Assistant Professor BAKER.  
55. The Industrial Chemistry of Organic Compounds. The same as Course 55, given the first semester. Professor LESLIE.  
59. Technical Gas Analysis. The same as Course 59, given the first semester. Deposit, \$5. Mr. GENIESSE and Mr. CARR.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925.)

*For Undergraduates.*

1. General and Inorganic Chemistry. *Four hours credit.* Professor LICHTY, and assistant.
2. General and Inorganic Chemistry. *Four hours credit.* Dr. HODGES, and assistant.
3. Qualitative Analysis. *Five hours credit.* Mr. COLE, and assistants.

*For Graduates and Undergraduates.*

65. Inorganic Preparations. *Two to four hours credit.* Professor LICHTY.
5. Quantitative Analysis. *Five hours credit.* Professor WILLARD, Mr. TANNER, and assistant.
28. Advanced Quantitative Analysis. *Four or five hours credit.* Professor WILLARD, Mr. TANNER, and assistant.
31. Special Problems in Quantitative Analysis. *Five hours credit.* Professor WILLARD.
33. Studies in Oxidation and Reduction. *Two hours credit.* Mr. COLE, and assistants.

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\* Other courses in Technical Chemistry are announced by the department of Chemical Engineering. Election of these other courses is subject to the rule governing the election of studies in other Colleges.

10. Organic Chemistry. *Four hours credit.* Assistant Professor SCHOEPPLE.
- 7a. Organic Chemistry. *Five hours credit.* Mr. \_\_\_\_\_.
42. Organic Preparations. *Two to four hours credit.* Assistant Professor SCHOEPPLE, and Mr. \_\_\_\_\_.
43. Organic Synthesis and Ultimate Analysis. *Two to four hours credit.* Assistant Professor SCHOEPPLE.
- 8E. Elementary, Theoretical, and Physical Chemistry. *Three hours credit.* Professor BARTELL.
12. The Teaching of Chemistry. *Two hours credit.* Professor SMEATON.
13. Physical Chemical Measurements. *Three to eight hours credit.* Assistant Professor BARTELL, Mr. COLE, and assistant.
15. History of Chemistry and Development of Chemical Theory from Remote Times to the Present. *Two hours credit.* Professor SMEATON.
52. Chemical Technology of Fuel Utilization. *One hour credit.* Mr. \_\_\_\_\_.
59. Technical Gas and Fuel Analysis. *Two hours credit.* Mr. \_\_\_\_\_, and assistant.
114. Drug Assaying and Pharmacopoeial Testing. *Four hours credit.* Mr. WAGENER.
- 44a. Analysis of Foods, Drugs, Etc. *Three or five hours credit.* Mr. WAGENER.

*For Graduates.*

16. Laboratory Research in Inorganic Chemistry. *Credit to be arranged.* Professors LICHTY and SMEATON.
49. Research in Organic Chemistry. Assistant Professor SCHOEPPLE.
37. Original Investigation in Analytical Chemistry. *Credit to be arranged.* Professor WILLARD.
18. Laboratory Research in Physical Chemistry. *Credit to be arranged.* Professor SMEATON, Professor BARTELL, and Dr HODGES.
- 44b. Analysis of Foods, Drugs, Etc. Continuation of 44a. *Three or five hours credit.* Mr. WAGENER.

### **Metallurgy†**

#### **FIRST SEMESTER**

6. Metallurgy of Iron and Steel. Class work. *Two hours credit.* Assistant Professor WOOD.  
A detailed study of the methods employed in the production of the various iron and steel products; thermal studies of some of the major operations; correlation of the physical properties of the metals and their heat and mechanical treatments.  
Open to those who have completed Course 3 in Chemistry.
7. Metallurgy of the Non-ferrous Metals. Class work. *Two hours credit.* Assistant Professor UPTHEGROVE.  
This course covers the conversion practice for copper, zinc, lead, tin, and aluminum and the production of non-ferrous alloy castings.  
Open to those who have completed Course 3 in Chemistry.
8. Metallography of Metals. Class and laboratory work. *Two hours credit.* Assistant Professor UPTHEGROVE.  
In this course a special study is made of the microscopic constituents of iron and steel and the common non-ferrous metals. The effect of heat treatments, mechanical working, and composition on the structure and properties are also studied.  
Open to those who have completed Metallurgy 6.
10. Seminary on the Theory of Steel and Properties of Metallic Solutions. *One hour credit.* Professor CAMPBELL.
31. Seminary in Metallurgy. Readings and reports on metallurgical subjects. *Two hours credit, to be arranged.* Assistant Professor UPTHEGROVE.  
Open only to graduates and seniors who receive special permission.

#### **SECOND SEMESTER**

6. Metallurgy of Iron and Steel. Same as Course 6, the first semester. Assistant Professor WOOD.
8. Metallography of Metals. Same as Course 8, the first semester. Assistant Professor UPTHEGROVE.
- 10a. Continuation of Course 10. *One hour credit.* Professor CAMPBELL.
31. Seminary in Metallurgy. Reading and reports on metallurgical subjects. *Two hours credit.* Assistant Professor UPTHEGROVE.  
Open only to graduates and seniors who receive special permission.

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† Other courses in Metallurgy are announced by the department of Chemical Engineering. Election of these other courses is subject to the rule governing the election of studies in other Colleges.

**CLASSICAL ARCHAEOLOGY****(Group I)**

The following courses do not require a knowledge of Greek or of Latin. The large collection of lantern slides and photographs owned by the University makes it possible to illustrate all these courses fully. The collection of casts of ancient sculpture in the Art Gallery is also utilized in the courses in ancient art. A more complete statement of the material at hand for the study of Roman Archaeology is given under the department of Latin.

**FIRST SEMESTER**

1. Introduction to Classical Archaeology. *Two hours credit.* Professor WINTER.  
Illustrated lectures and assigned readings.
- [4. Ancient Greek Life. *Two hours credit.* Dr. TITCHENER.  
The life of the Greeks will be fully illustrated from objects of art, especially vase paintings. Special attention will be given to Greek houses, temples, armor, dress, amusements, athletics, art, and crafts.  
Lectures, illustrated with stereopticon; assigned readings.  
Omitted in 1923-1924.]
6. Greek Mythology. *Two hours credit.* Professor BONNER.  
Illustrated lectures and assigned readings. Classical myths will be treated with special reference to their influence on modern literature.  
Students may enter this course after the first week of the semester only by special permission of the instructor.
- [33. Greek Vases. Illustrated lectures and assigned readings. *Two hours credit.* Professor WINTER.  
The decorated vases of the Greeks will be studied partly as the objects of art and partly as documents of Greek history, civilization, and literature. The lectures will be illustrated by lantern slides and by plates from the University's collection of archaeological material.  
Omitted in 1923-1924.]

**SECOND SEMESTER**

- 2a. Monumental History of the City of Rome. A survey of the monuments of art of different periods, with special study of the Forum, the Imperial palaces, and other topographical groups of special importance. Lectures, illustrated. *Three hours credit.* Professor WINTER.
- [2b. Roman Life as Illustrated by Works of Art and Objects of Common Use. The Roman house and home life, dress, social activities, athletics, trades, professions, the circus and theater, public ceremonies, and the transformation of Roman society



under the empire. Lectures, with stereopticon illustrations, plates, and the study of specimens in the University collections. *Three hours credit.* Professor WINTER.  
Omitted in 1923-1924.]

8. Topography and Monuments of Ancient Athens. Illustrated lectures and assigned readings. *Two hours credit.* Professor WINTER.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925.)

- 2as. Monumental History of the City of Rome. *Two hours credit.* Professor WINTER.
- 6s. Greek Mythology. *Two hours credit.* Professor BONNER.
- 15s. Laboratory Course in Roman Antiquities. *Two hours credit.* Professor WINTER, and Dr. BUTLER.

### DRAWING

#### Engineering Drawing

##### FIRST SEMESTER

1. Mechanical and Machine Drawing. *Three hours credit.*
- 1d. Instrumental and Free-hand Drawing. This course is planned for students of Dentistry. *One hour credit.*
2. Descriptive Geometry. *Three hours credit.*
3. Drafting Room Practice and Sketching. *Two hours credit.*
4. Mechanism. *Two or three hours credit.*
- 4a. Descriptive Geometry and Shades and Shadows. *Three hours credit.*
- 5a. Perspective and Stereotomy. *Two hours credit.*
10. Free-Hand Lettering. *Two hours credit.* Assistant Professor PALMER.
12. Statistical Charting. *Two hours credit.* Professor GOULDING.
13. Patent Office Drafting. This course is to be taken without credit.

##### SECOND SEMESTER

1. Mechanical and Machine Drawing. *Three hours credit.*
2. Descriptive Geometry. *Three hours credit.*
4. Mechanism. *Two or three hours credit.*
- 4a. Descriptive Geometry and Shades and Shadows. *Three hours credit.*
- 5a. Perspective and Stereotomy. *Two hours credit.*

10. Free-Hand Lettering. *Two hours credit.* Assistant Professor PALMER.
11. Spherical Projections. *One hour credit.*
12. Statistical Charting. *Two hours credit.* Professor GOULDING.
13. Patent Office Drafting. This course is to be taken without credit.

SUMMER SESSION OF 1924

Six courses will be given in the College of Engineering.

**Free-Hand Drawing and Painting**

The aim of the instruction in free-hand drawing and in painting is to teach accurate observation of form, proportions, light and shade, and color, and their artistic representation and interpretation, both as a matter of general education and as part of a more specific training for teaching, in pictorial or decorative art, or in architecture.

For the general student, Courses 21, 22 and 24 will give an elementary training in drawing and painting. Courses 30, 31, and 32 provides more advanced work in painting; Courses 25, 26, 27, and 28 more advanced training in drawing. Course 23 is a special course in the drawing of ornament for students of architecture and decoration, while Course 35 is primarily for architectural students, although open to others. Outdoor sketching and painting can best be studied during the summer session.

At present there are no classes in portrait painting nor painting from the costume model, but such instruction can, under certain conditions be arranged for groups of students who have advanced preparation.

The drawing is done in pencil, crayon, charcoal, pen and ink, and pastel from various kinds of objects and models, including ancient, medieval, Renaissance, and modern ornament and sculpture. Rapid sketching from the figure is carried on as part of Courses 27 and 28 to stimulate simple indication of essentials.

The painting is done mostly in water colors, although non-architectural students may paint in oil and pastel.

Still-life painting in water color or oil cannot be studied profitably without some preliminary training in free-hand drawing (Drawing 21 and 22). For drawing from the living model some preliminary training is required from the antique (Drawing 25 and 26).

All the courses are given both semesters and instruction is given in Courses 21 and 26, inclusive, every morning and afternoon. The hours for these and other courses are shown in the schedule of the Colleges of Engineering and Architecture published at the beginning of each semester.

In general, six hours class work per week for a semester are required for a two-hour credit course. A given course must be elected with a single instructor and in periods of not less than two

hours consecutively. Advancement in all these courses is individual, depending on the progress made by the student and determined largely by work done without criticism.

## BOTH SEMESTERS

21. Free-Hand Drawing. *Two hours credit.* Introductory Course. Drawing from simple forms in line and light and shade. Free-hand perspective.
22. Free-Hand Drawing. *Two hours credit.* Drawing from simple decorative forms in charcoal and pencil.
23. Free-Hand Drawing. *Two hours credit.* Drawing from decorative forms. Primarily for students of architecture and decoration. Must be preceded by Drawing 22.
24. Water Color Painting. *Two hours credit.* Painting from still life in water colors. Must be preceded by Courses 21 and 22 or their equivalent.
25. Free-Hand Drawing. *Two hours credit.* Drawing from parts of the figure.
26. Free-Hand Drawing. *Two hours credit.* Drawing from the full figure.
- 27 and 28. Free-Hand Drawing. *Two hours credit each.* Drawing from life. Figure sketch class. Admission to these courses is limited to those who have satisfactorily completed the preceding courses or their equivalent.
30. Water Color Painting. *Two hours credit.* Painting in water color from still life. Must be preceded by Course 24 or its equivalent.
31. Pastel Drawing and Painting. *Two hours credit.* Drawing and painting from still life in pastel. Must be preceded by Course 24 or its equivalent.
32. Drawing and Painting in Oil. *Two hours credit.* Drawing and painting from still life in oil. Must be preceded by Course 24 or its equivalent.
33. Clay Modeling. *Two hours credit.*
35. Pen and Ink Drawing. *One or two hours credit.* Elective. Students not registered in Architecture should have the equivalent of six credit hours in free-hand drawing before taking this course.  
For regular students of architecture this course must be preceded by Courses 4a, 21, 22, and 23, in Drawing, and Architecture 5.

**ECONOMICS**

(Group III)

Attention is called to the new School of Business Administration which is to be opened at the beginning of the academic year 1924-1925. Courses in Business Administration will be offered during the next three academic years both in the department of Economics, in the College of Literature, Science, and the Arts, and in the School of Business Administration; but with the beginning of the year 1927-1928, the courses will be withdrawn from the department of Economics and instruction in Business Administration confined to the new School. For information regarding the programs of study and the requirements for admission and graduation see the chapter on the School of Business Administration, immediately following that on the School of Education.

**Political Economy and Business Administration**

**POLITICAL ECONOMY.**—The instruction in Political Economy is arranged to meet the needs of three classes of students. The first class comprises those whose principal work lies in other departments of instruction, but who desire a cursory introduction to the science. Students of this class are advised to take Courses 1 and 2, unless their time is very limited, in which case they may take Course 1a. The second class comprises those who desire to make a fairly thorough study of economics, but who have not time to take the advanced or the semi-professional work offered. Such students are advised to follow Courses 1 and 2 with one or more of the following: 3, 4, 9, and 15. The third class embraces those students who desire to make a thorough study of the science of economics, and especially those who wish to combine the study of political economy and finance with history, political science, and law for the purpose of preparing themselves for some one of the several professions or careers to which this group of studies naturally leads. Such persons will have no difficulty enlarging their programs from the advanced electives.

It is very desirable that students specializing in economics should have a good knowledge of German and French. For second-year work in those languages, therefore, such students should elect courses devoted to reading rather than to conversation and composition, and, in the case of German, these courses should be the ones specially arranged for students of history and the political sciences.

**BUSINESS ADMINISTRATION.**—Special programs, on the completion of which the student will receive a special certificate in addition to his diploma, have been arranged to meet the needs of those students who wish to prepare themselves for a general business career or for particular lines of business, such as railway administration, insur-

ance, accounting, and banking. Students may enroll for this special certificate in Room 106, Ec. *not later than the beginning of their senior year.*

**CONSULTATION HOURS.**—Throughout registration week, Professor TAYLOR, daily, 10 to 11:30 and 1:30 to 3. Room 105, Ec.

During the year the instructors in the department will have consultation hours as follows:

Professor TAYLOR, during the first two weeks of the semester, *M, Tu, W, Th*, and *F*, 8:30 to 9:30, 11 to 12, and 1:30 to 2:30. Room 105, Ec.; after the first two weeks, *Tu, Th*, at 11.

Professor SHARFMAN, *Tu, Th*, at 10. Room 209, Ec.

Professor PATON, *M, W*, at 11. Room 4, Ec.

Professor GRIFFIN, *Tu, Th*, at 11. Room 204, Ec.

### Political Economy

#### FIRST SEMESTER

*Students who elect any course without first completing the necessary prerequisites will be denied credit in that course.*

1. Principles of Economics, I. *Three hours credit.* The class will be divided into probably thirty sections. Professor TAYLOR, Dr. C. H. MAY, and Messrs. WYNGAARDEN, OPPENHEIM, KNIGHT, SMITH, MEIKLEJOHN, THRUN, LEWIS, BIGGE, and CRAMER.

The immediate administration of this course is in charge of Dr.

C. H. MAY, who will have consultation hours in Room 206, Ec.

This course and Course 2 constitute a general course in the principles of economics which must precede all other courses in economic except 1a, 1E, 1G, and 38.

This course will be repeated in the second semester.

- 1a. General Economics. Lectures and quizzes. *Three hours credit.* Mr. PETERSON.

This course is designed for seniors, graduates, and students in their last semester of residence, whose chief interest is in some other department and who have time for but one course in economics. It will not be accepted in lieu of Courses 1 and 2 as prerequisite to other economic courses, and is not open to students who have had or are taking Course 1 or 1E, or 1G.

This course, beginning with a brief description of modern industrial society, undertakes a study of the leading principles of economics and their application to current problems of industrial, organization, exchange, distribution, and public control of industry.

This course will be repeated in the second semester.

- 1c. Elements of Economics. *Three hours credit.* Assistant Professor MASSON.

This course is especially designed to meet the needs of students whose work lies in professional departments, particularly engineering. It will be devoted to a consideration of the fundamental economic principles and of the important practical current problems of the economic world, particularly insofar as they illustrate these principles.

No student can receive credit for this course and Course 1 or Course 1a or Course 1G.

Students who plan to take an extended course in economics should take Course 1.

**1G. Essentials of Economic Theory. *Three hours credit.* Professor TAYLOR.**

This course is a review of the most important parts of the principles of economics. It is designed to meet the needs of those graduate students whose elementary course did not furnish adequate preparation for advanced courses in economics. In such cases this course will be a prerequisite to Course 7.

**2. Principles of Economics, II. *Three hours credit.* Professor TAYLOR, Dr. C. H. MAY, and Messrs. SMITH and OPPENHEIM.**

This course is a continuation of Course 1, by which it must be preceded. (It is not open to students who took Course 1 prior to 1921-1922.)

**3. Labor Problems and Trade Unionism. *Three hours credit.* Professor DICKINSON.**

A survey of the present labor situation, especially in the United States, with constant recourse to historical background and economic principles for explanation of existing phenomena. Organized movements of workers and employers are studied as to origins, philosophies, methods and results. The student is made acquainted with the issues involved in strikes, boycotts, trade agreements, closed shop policy, etc., but these matters are subordinated throughout to the wider problems of industrial relations. Statistical and descriptive materials on wages, hours, unemployment, cost of living, as well as on the peculiarities and interrelations of unions and employers' associations, are introduced. Reactions between labor problems and the general business cycle are shown; and coöperative and socialistic movements such as syndicalism, are briefly touched upon, where they serve to illuminate the general labor situation. Students are expected to provide themselves, in addition to other texts, with all current numbers of the Monthly Labor Review of the U. S. Bureau of Labor Statistics; hence subscriptions should be entered early. Written and oral solutions of assigned problems will be frequently required.

**Prerequisites:** Courses 1 and 2.

- 4 Principles of Public Finance. *Three hours credit.* Mr. CAVERLY. This course is devoted to a consideration of the fundamental principles of government finance, together with an analysis of the fiscal system of the United States. It deals with public expenditures, treasury organization and the budget, revenue systems, and public debts. Particular stress will be placed, however, on the study of the nature, principles, and effects of taxation and on the description of Federal, state and local tax systems. The course will be concluded by a brief treatment of war finance, especially the financial problems and methods of the United States during the World War.

Prerequisites: Courses 1 and 2.

6. Railway Problems. Lectures, reading, and discussion. *Three hours credit.* Mr. CAVERLY, and Mr. SMITH.

This course considers the social and industrial significance of modern transportation, traces the development of railway transportation, analyzes the chief railway problems in the United States, with special reference to the nature of railway competition and the theory and practice of rate-making, and devotes particular attention to the regulation of railways, especially by the federal government. The course will be concluded by a discussion of the war administration of the railroads and of the adjustments in railway regulation which accompanied the return of the roads to private operation.

Prerequisites: Courses 1 and 2.

7. Leading Problems in Economic Theory, I. *Two hours credit.* Professor TAYLOR.

This course undertakes the intensive study of those problems in economic theory with respect to which there are now, or have been in the past, notable differences of opinion. Naturally, the treatment is frankly controversial; this fact, however, is not allowed to hinder reaching definite conclusions upon the several problems brought forward. This course should be elected by all students who are preparing to teach economic subjects.

It will be required for admission to Course 13, 13a, 13b, etc.

Prerequisites: Courses 1 and 2, with a grade not lower than B. This course will be repeated in the second semester.

9. Money and Banking. *Three hours credit.* Mr. RODKEY.

This course undertakes an analysis of theories of money and credit. Attention is given also to monetary history and banking as an agency for capital supply and of the relationship between bank credit and money and prices. Particular attention will be given to the federal reserve system.

This course should be followed by 9a by all students expecting to specialize in economics or business administration.

Prerequisites: Courses 1 and 2.

13. Studies in the Literature of Economic Theory. *Two hours credit.* Professor TAYLOR.

This course is intended to give the advanced student some acquaintance with the history of economic doctrine, the writings of the most notable authorities, and the most significant contributions of recent writers. It is given in a three-year cycle, appearing as 13, 13*b*, and 13*d*, in the first semester, and as 13*a*, 13*c*, and 13*e*, in the second semester.

Prerequisites: Courses 1, 2, 7, and 8.

14. Economic Statistics. *Three hours credit.* Professor DAY.

This course is designed to acquaint the student with the sources and analysis of the more important statistical data of economic science.

Prerequisites: Courses 1, 2, and 9.

17. Research Work.

This course is designed for students who desire to pursue independent research in connection with topics not covered in any other seminary. Supervision over this work will be assigned to that instructor in the department who is most interested in the subject chosen. This course may be elected with the approval of the Chairman of the department. The credit allowed will depend on the amount and character of the work done.

This course is open only to graduate students.

- [26. Railway Organization and Operation. Lectures, readings, and reports. *Three hours credit.* .

This course undertakes a study of problems incident to the operation of steam railroads from the standpoint of both the railway administrative officers and of public regulatory bodies.

It deals with problems of railway organization, and administrative methods of controlling expenses, and of auditing revenues. It considers the use of statistics as an aid to the attainment of economics in operation.

Prerequisites: Courses 1, 2, 6, and 38.

Omitted in 1923-1924.]

38. Principles of Accounting, I. *Three hours credit.* Lectures, recitations, and laboratory. Professor PATON, Mr. ROSS, Mr. CAHOW, Mr. HORNER, Mr. GEE, and Mr. MASON.

This introductory course consists primarily in a study of the principles of the double-entry system, the more important technical devices of accounting being briefly considered in this connection. The classification of accounts for managerial and other purposes, the significance and determination of business income, and the treatment of partners' accounts, are among the special topics discussed. Particular attention is given to periodic ledger analysis, to the construction and use



of working sheets, and to the preparation of statements of income and financial condition.

Course 1 must precede or accompany this course.

This course is repeated in the second semester.

49. Elements of Mathematical Statistics. *Three hours credit.* Elect as Mathematics 49. Professor CARVER, Mr. BARNARD, and Mr. JENKINS.

This course deals with the elementary theory and application of mathematical statistics and will include a study of such topics as averages, measures of dispersion, coefficients of correlation, and curve fitting. For further information; see Course 49 in Mathematics.

50. Mathematical Statistics. *Two hours credit.* Elect as Mathematics 50. Professor CARVER and Mr. BARNARD.

This course is a continuation of Course 49 by which it must be preceded.

For further information, see Course 50 in Mathematics.

51. Introduction to the Mathematical Theory of Interest. *Three hours credit.* Elect as Mathematics 51. Professors GLOVER and CARVER, Mr. BARNARD, and Mr. JENKINS.

The aim of this course is to explain and illustrate the applications of mathematics to financial transactions to such an extent as may be of interest and value to the general student. It must be preceded or accompanied by Course 1 (or 1E). For further information, see Course 51 in Mathematics.

The attention of students who desire to specialize in statistical and actuarial mathematics is called to a note concerning the arrangement of their work in this Announcement under Mathematics.

52. Introduction to the Mathematical Theory of Interest and Insurance. *Three hours credit.* Elect as Mathematics 52. Mr. BARNARD.

Course 52 is open to those who have completed Courses 1 (or 1E) and 51 in Mathematics. For further information, see Course 52 in Mathematics.

55. Advanced Mathematical Theory of Interest and Life Contingencies, I. *Three hours credit.* Elect as Mathematics 55. Professor GLOVER.

For further information, see Course 55 in Mathematics.

59. Mathematical Theory of Statistics (I). Advanced Course. Elect as Mathematics 59. *Two hours credit.* Mr. BARNARD.

For further information, see Course 59 in Mathematics.

- [67. Casualty Actuarial Theory. *Two hours credit.* Elect as Mathematics 67. Assistant Professor ———.

For further information, see Course 67 in Mathematics.

Omitted in 1923-1924.]

SECOND SEMESTER

*Students who elect any course without first completing the necessary prerequisites will be denied credit in that course.*

1. Principles of Economics, I. *Three hours credit.* The class will be divided into about eight sections. Professor TAYLOR, Professor DAY, Dr. C. H. MAY, and Messrs. OPPENHEIM, KNIGHT, MEIKLEJOHN, and others.

The first meeting of the class will be held in the Natural Science Auditorium, at 3 the first *Monday* of the semester. At that time the members of the class will make their choice of hours for section meetings; and on the basis of these choices, the distribution of the class into sections will be made, and the result announced together with the time and place, *Tuesday* morning.

The immediate administration of the course will be in charge of Dr. C. H. MAY, who will have consultation hours in Room 206, Ec.

This course and Course 2 constitute a general course in the principles of economics which must precede all other courses in economic except 1A, 1G, and 38.

This is a repetition of Course 1 of the first semester.

- 1a. General Economics. Lectures and quizzes. *Three hours credit.* Mr. PETERSON.

This is a repetition of Course 1a of the first semester.

2. Principles of Economics, II. *Three hours credit.* Professor TAYLOR, Dr. C. H. MAY, and Messrs. WYNGAARDEN, OPPENHEIM, KNIGHT, MEIKLEJOHN, THRUN, LEWIS, and BIGGE.

This course is a continuation of Course 1, by which it must be preceded. (It is not open to students who took Course 1 prior to 1921-1922.)

- 2c. Elements of Economics. *Three hours credit.* Assistant Professor MASON.

A continuation of 1C. Special attention will be given to problems of valuation and the principles of government regulation of industry.

Prerequisite: 1C.

- 3a. Industrial Government. *Three hours credit.* Professor DICKINSON.

Virtually a continuation of Economics 3. Voluntary machinery for legislation and adjudication of labor problems (collective bargaining), through trade unions and otherwise, is first studied by means of a number of selected cases. Public regulation of all these matters, — hours, wages, social insurance, union status and practices, conciliation and adjustment of industrial disputes — by legislative and judicial methods, is

then considered. This section thus includes both the theory and practice of "social legislation," and its reception by the courts; as well as the legal status of the weapons of unions and employers' associations and state's efforts to preserve industrial peace. Both foreign and domestic experience are drawn upon.

Prerequisites: Courses 1, 2, and 3.

5. The Theory of Taxation. *Two hours credit.* Mr. CAVERLY.

In this course a more intensive study of the fundamental theory of taxation will be made than is possible in the introductory course. Starting with an analysis of the taxing power and the economic nature of the tax payment, such problems as the shifting, incidence and effects of taxation, the various bases of tax apportionment, constitutional and legal aspects of taxation will receive special consideration. Toward the end of the course, the application of tax theory to some special phase of the present tax system will be considered.

This course will involve readings and class room discussion, but individual research will be stressed. Each student will be expected to present a report covering the results of his investigations.

Prerequisites: Courses 1, 2, and 4; and consent of the instructor.

7. Leading Problems in Economic Theory, I. *Two hours credit.* Professor TAYLOR.

Prerequisites: Courses 1 and 2, with a grade not lower than B. This is a repetition of Course 7 of the first semester.

8. Leading Problems in Economic Theory, II. *Two hours credit.* Professor TAYLOR.

This course is a continuation of Course 7, by which it must be preceded. For details, see the announcement of that course.

9a. Money and Banking. *Three hours credit.* Mr. RODKEY.

This course is a continuation of Course 9 of the first semester. Prerequisites: Courses 1, 2, and 9.

10. Economic Cycles. *Three hours credit.* Professor DAY.

This course deals with the character, the statistical measurement and the explanation of the economic cycle. Attention is also given to methods of business forecasting.

Prerequisites: Courses 1, 2, 9, and 14.

[12. Foreign Exchange. *Two hours credit.* Assistant Professor CALHOUN.

This course treats of the principles and methods of foreign exchange. It will include a study of the fluctuation of exchange rates since the war.

Prerequisites: Courses 1, 2, and 9.

Omitted in 1923-1924.]

- 13a. Studies in the Literature of Economic Theory. *Two hours credit.* Professor TAYLOR.

This course is intended to give the advanced student some acquaintance with the history of economic doctrine, the writings of the most notable authorities, and the most significant contributions of recent writers. It is given in a three-year cycle, appearing as 13, 13*b*, and 13*d*, in the first semester, and as 13*a*, 13*c*, and 13*e*, in the second semester.

Prerequisites: Courses 1, 2, 7, and 8.

15. Corporations. Lectures, reading, and discussion. *Three hours credit.* Mr. CAVERLY and Mr. SMITH.

This course undertakes a study of corporations as an element in industrial society, laying special emphasis upon the so-called trust problem and questions of government regulation of industry.

It deals with the forms of business organization, with particular stress on the nature and history of corporations and their significance in modern life. While it offers an account of the promotion, capitalization, and reorganization of corporations, questions of finance are for the most part subordinated to a consideration of the economic aspects of industrial combination, such as its effects upon efficiency, wages, profits, and prices. The course is concluded by a study of the Sherman Anti-Trust Act and the trust legislation of 1914.

Prerequisites: Courses 1 and 2.

- [16. Public Service Industries. Lectures, reading, and discussion. *Two hours credit.* Professor SHAREMAN.

This course considers the nature of public service industries, such as railroads, street railways, gas and electric companies, telephone and telegraph companies, and their relation to the state and to the municipality. The problem of public ownership and public control is given careful study on the basis of American and European experience, with special consideration of commission regulation in the United States.

Prerequisites: Courses 1, 2, 6, 15, 38, and 39.

This course is open only to seniors and graduate students.

Omitted in 1923-1924.]

18. Research Work.

This course is designed for students who desire to pursue independent research in connection with topics not covered in any other seminary. Supervision over this work will be assigned to that instructor in the department who is most interested in the subject chosen. This course may be elected only with the approval of the Chairman of the department. The credit allowed will depend on the amount and character of the work done.

This course is open only to graduate students.

33. Foreign Trade. *Two hours credit.* Professor GRIFFIN.  
This is an introductory course in the study of foreign trade. Three groups of questions are considered: (1) The economic theory underlying international trade; (2) the business organization for the conduct of exporting and importing, especially the marketing methods of American exporters; and (3) governmental policy regarding international trade with special reference to tariff policy.  
Prerequisites: Courses 1, 2, 31.
38. Principles of Accounting, I. *Three hours credit.* Professor PATON, Mr. HORNER, and Mr. GEE.  
This is a repetition of Course 38 of the first semester.  
Course 1 must precede or accompany this course.
- 38E. Principles of Accounting. *Three hours credit.* Mr. ROSS.  
This course is intended primarily for students whose work lies in professional departments, particularly engineering. The subject matter of the course is similar to that of Course 38. Special attention is given to the problems of maintenance and depreciation, and to the analysis of transactions involving interest calculations.
39. Principles of Accounting, II. *Three hours credit.* Lectures, recitations, and laboratory. Professor PATON, Mr. HORNER, Mr. GEE, and Mr. MASON.  
This is a continuation of Course 38. It is also open (with permission) to students who have completed Course 38E. The work of this course includes a study of the corporate proprietary accounts (capital stock, surplus, dividends, and reserves) and corporate liabilities, the treatment of bond discounts and premiums receiving especial consideration. Among the topics in valuation discussed are the problems of the organization period, the bases for revaluation, depreciation policies and procedures, and the treatment of the intangible assets. A considerable time is devoted to the construction and analysis of detail and summary financial statements.  
Prerequisites: Courses 1 and 38.
49. Elements of Mathematical Statistics. Introductory Course. *Three hours credit.* Elect as Mathematics 49. Professor CARVER, and Mr. BARNARD.  
This course deals with the elementary theory and applications of mathematical statistics and will include a study of such topics as averages, measures of dispersion, coefficients of correlation and curve fitting. For further information, see Course 49 in Mathematics.
50. Mathematical Theory of Statistics. *Two hours credit.* Elect as Mathematics 50. Professor CARVER, and Mr. BARNARD.

This course is a continuation of Course 49 by which it must be preceded.

For further information, see Course 50 in Mathematics.

51. Introduction to the Mathematical Theory of Interest. *Three hours credit.* Elect as Mathematics 51. Professors GLOVER and CARVER, Mr. BARNARD and Mr. JENKINS.

The aim of this course is to explain and illustrate the applications of mathematics to financial transactions to such an extent as may be of interest and value to the general student.

It must be preceded or accompanied by Course 1 (or 1E).

For further information, see Course 51 in Mathematics.

The attention of students who desire to specialize in statistical and actuarial mathematics is called to a note concerning the arrangement of their work in this Announcement under Mathematics.

52. Introduction to the Mathematical Theory of Interest and Insurance. *Three hours credit.* Elect as Mathematics 52. Professors GLOVER and CARVER, Mr. BARNARD, and Mr. JENKINS. Course 52 is open to those who have completed Courses 1 (or 1E) and 51 in Mathematics.

For further information, see Course 51 in Mathematics.

56. Advanced Mathematical Theory of Interest and Life Contingencies (II). *Three hours credit.* Elect as Mathematics 56. Professor GLOVER.

For further information, see Course 56 in Mathematics.

60. Mathematical Theory of Statistics (II). Advanced Course. *Two hours credit.* Elect as Mathematics 60. Mr. BARNARD.

For further information, see Course 60 in Mathematics.

- [68. Seminary in Casualty Actuarial Theory. *Two hours credit.* Elect as Mathematics 68. Assistant Professor ROBBINS.

For further information, see Course 68 in Mathematics.

Omitted in 1923-1924.]

### Business Administration

#### FIRST SEMESTER

31. Marketing. *Three hours credit.* Professor GRIFFIN.

This is a fundamental course in the principles and methods of marketing. It will include a discussion of the marketing of raw materials and of agricultural and manufactured products, and a consideration of the characteristics of the wholesale and retail trade. Some specific problems of marketing, such as speculation, elimination of middleman, price maintenance, and the cost of marketing, will be considered. The course will be concluded by a survey of selling policies of the manufacturer.

Prerequisites: Courses 1 and 2.

32. Industrial Organization and Management. *Three hours credit.* Assistant Professor EDMONDS.  
This is a fundamental course in the principles of internal organization and management of industrial enterprises. It will include a discussion of the nature of modern industry and of present industrial tendencies; types of internal organization, the location and arrangement of industrial plants; planning, supervision, and control, purchasing policies, scientific management and the employment of labor.  
Prerequisites: Courses 1 and 2.  
This course will be repeated in the second semester.
34. Personnel Administration. *Two hours credit.* Assistant Professor EDMONDS.  
This is a course in the employment, training, control, and compensation of labor. In the latter part of the course consideration is given to the problem of industrial relations as viewed from the standpoint of the management. The course is designed to give students a knowledge of the fundamental problems involved in the employment and supervision of employees relations.  
Prerequisites: Courses 1, 2, and 32.
- 32a. Problems of Industrial Organization. *Two hours credit.* Assistant Professor EDMONDS.  
This course will consist of a study of selected problems in the field of Industrial Organization. Questions which were of special interest in Course 32 will be studied in greater detail.  
Prerequisites: Courses 1, 2, and 32.
- 33a. Problems in Foreign Trade. *Two hours credit.* Professor GRIFFIN.  
This course involves a study of business organization and selling policies in foreign trade. The case method of instruction is used exclusively.  
Prerequisites: Courses 1, 2, 31, and 33.
- 34a. Problems in Employment Management. *Two hours credit.* Assistant Professor EDMONDS.  
In this course the more important phases of employment management will be developed by means of reports and discussion.  
Prerequisites: Courses 1, 2, 32, and 34.
- 36a. Railway Accounting. *Three hours credit.* Mr. HORNER.  
This course is devoted to a study of the standardized system of accounts prescribed for railroads by the Interstate Commerce Commission. It deals with construction, revenue, expense, income, profit and loss, and balance sheet accounts. Special emphasis is given to the use of the accounts and accounting statements by operating officers, by public service commissions, and by investors in railway securities.  
Prerequisites: Courses 1, 2, 6, 38, and 39.

37. Corporation Finance. Lectures, reading, and discussion. *Three hours credit.* Assistant Professor MASON.

This course aims to study the organization and intercorporate relations of modern railway and industrial enterprises, with special reference to problems of finance. It deals with such subjects as the nature and varieties of stocks and bonds, the distribution and price movements of corporation securities, corporate promotion, capitalization, and reorganization.

Prerequisites: Courses 1, 2, and 15.

40. Cost Accounting. *Three hours credit.* Mr. ROSS.

This course undertakes an analysis of accounts and accounting statements for manufacturing concerns, with special reference to the problems of management. Various methods of allocating indirect expense to production factors and to specific products are studied. The principles of costing are illustrated in a complete cost set which is worked out by the student as a laboratory exercise.

Prerequisites: Courses 1, 2, 38, and 39.

- 43a. Income Tax Procedure. *Three hours credit.* Professor PATON.

In this course are considered the important features of the income and profits tax program of the federal government, with especial reference to their relation to accounting.

Prerequisites: Courses 1, 2, 38, and 39.

46. Business Law, I. Lectures, reading, and discussion of selected cases. *Three hours credit.* Mr. WOLAVER.

This course, designed to meet the special needs of students in business administration, deals with the legal significance of the more important business situations likely to arise in commercial and industrial life. It undertakes, through a study of concrete cases and legal rules, to acquaint the student with the point of view of the law, as a means of helping to prepare the business man to avoid legal controversy as far as possible, and to cooperate intelligently with legal counsel when litigation can not be avoided.

The training afforded by this course and the subject matter with which it deals extend through the entire year, and students electing Course 46 in the first semester will be expected to elect Course 47 in the second semester.

During the first semester the course deals primarily with contractual transactions, involving a study of the leading principles of the law of contracts, sales, and commercial paper. During the second semester the course deals largely with legal questions arising out of the various forms of business association, involving a study of the leading principles of the law of agency, partnership, and corporations. Throughout the course emphasis is laid upon the practical application of legal rules in ordinary business dealings.



This course is not open to students intending to pursue the professional study of law.

48a. Insurance Accounting. *Two hours credit.* Mr. WIGHTMAN.

This course includes an exhaustive study of home office accounting and card systems and tabulating machine equipment used in life, fraternal, casualty, fire, and miscellaneous insurance companies. Annual reports and interim statements are analyzed and the preparation of technical items explained.

This course is open to students who have taken Accounting 38 and Mathematics 51 and 52.

Prerequisites: Courses 1, 2, and 38 in Economics, and Mathematics 51 and 52.

SECOND SEMESTER

31a. Problems in Marketing. *Two hours credit.* Professor GRIFFIN.

In this course the principles of marketing are applied to specific business problems. The case method of instruction is used exclusively.

Prerequisites: Courses 1, 2, and 31.

32. Industrial Organization and Management. *Three hours credit.* Assistant Professor EDMONDS.

Prerequisites: Courses 1 and 2.

This is a repetition of Course 32 of the first semester.

37a. Industrial Finance. *Three hours credit.* Assistant Professor MASSON.

This course deals primarily with the financial problems met with in the organization and conduct of a business enterprise of small or medium size. Attention is given to the means of securing permanent capital, either in the initial stages of a business or in financing the expansion of a going concern. The various methods of obtaining working capital are studied with special emphasis upon the distinction between temporary and permanent borrowing. Consideration is also given to the policies to be followed with respect to the earnings of a business, and to various other problems of internal finance connected with the purchasing, producing, and selling of goods.

Prerequisites: 1, 2, 37, 38, and 39.

42. Governmental Accounting. *Three hours credit.* Mr. HORNER.

This course is devoted to a study of the problems and methods of accounting peculiar to governmental units. It deals primarily with the accounting procedures of municipal, state, and federal governments, but some attention is also given to special public enterprises such as schools and hospitals.

Prerequisites: Courses 1, 2, 38 and 39.

43. Auditing and C. P. A. Problems. *Three hours credit.* Mr. ROSS.

This course is designed to meet the needs of students who have a professional interest in accounting. The problems used are

for the most part taken from state C. P. A. and American Institute examinations. Special attention is given to problems dealing with the distribution of profits in partnerships and with liquidation and realization in partnerships and corporations. During the semester each student is required to prepare a report on a special system of accounts for some particular line of business or a paper on some accounting subject to be assigned.

Prerequisites: Courses 1, 2, 38 and 39.

44. The Theory of Accounting. *Three hours credit.* Professor PATON.

This is an advanced course in theory and may be elected only with the permission of the instructor. Readings and problems will be assigned and three written papers will be required.

Prerequisites: Courses 1, 2, 38 and 39.

47. Business Law, II. Lectures, reading, and discussion of selected cases. *Three hours credit.* Mr. WOLAVER.

For a full description of the scope and character of this course, see Course 46 given in the first semester, of which it is a continuation and by which it must be preceded.

This course is not open to students intending to pursue the professional study of law.

Prerequisites: Courses 1, 2, and 46.

- 48b. Insurance Accounting. *Two hours credit.* Mr. WIGHTMAN.

This course is a continuation of Courses 48a, by which it must be preceded.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

15. Principles of Economics. *Two hours credit.* Mr. CAHOW.  
 1a5. General Economics. *Two hours credit.* Mr. PETERSON.  
 1G5. Essentials of Economic Theory. *Two hours credit.* Assistant Professor MASSON.  
 25. Principles of Economics. *Two hours credit.* Mr. CAHOW.  
 35. Labor Problems and Trade Unionism. *Two hours credit.* Mr. PETERSON.  
 65. Railway Problems. *Two hours credit.* Mr. SMITH.  
 95. Money and Banking. *Two hours credit.* Mr. WATKINS.  
 145. Economic Statistics. *Four hours credit.* Mr. WATKINS.  
 155. Corporations. *Two hours credit.* Mr. SMITH.  
 165. Seminar in Public Utilities. *Two hours credit.* Mr. SMITH.  
 315. Marketing. *Two hours credit.* Professor GRIFFIN.

- 33s. Foreign Trade. *Two hours credit.* Professor GRIFFIN.
- 37s. Corporation Finance. *Two hours credit.* Assistant Professor MASSON.
- 37as. Industrial Finance. *Two hours credit.* Assistant Professor MASSON.
- 38s. Principles of Accounting. *Six hours credit.* Mr. HORNER.
- 49. Elementary Methods in Statistics. *Two hours credit.* Professor CARVER.
- 50. Mathematical Theory of Statistics. Introductory Course. *Two hours credit.* Mr. CRAIG.
- 51. Introduction to the Mathematical Theory of Interest. *Two hours credit.* Mr. JENKINS.
- 52. Introduction to the Mathematical Theory of Interest and Insurance. *Two hours credit.* Mr. CRAIG.

### Sociology

Work in Sociology should begin with Course 19, which is now given in both semesters. It is open to sophomores, but in no case to freshmen.

The courses in applied sociology are in close relation to the social agencies carrying on practical work in Detroit, which afford facilities, especially to graduates, for such studies as are practicable only in a large city. Additional credit is given for field work in connection with some of the courses.

### SPECIAL CURRICULUM FOR THE TRAINING OF SOCIAL WORKERS

At the regular monthly meeting of the Regents in May, 1921, a special curriculum for the training of social workers was authorized, to include graduate and undergraduate work, provision being made for the granting of the degree of Master of Arts to those who complete the required amount of work in the Graduate School. A statement of the suggested curriculum for undergraduates in this field is to be found on page 183 of this Catalogue. For the fulfillment of the requirements for the Master's degree in this field besides the class work a considerable amount of field work will be assigned under supervision and in connection with the social agencies in Detroit and Ann Arbor. A very limited amount of field work, not more than is represented by five hours of academic credits, is permitted to undergraduates in this curriculum. A fuller statement of the opportunities in this curriculum for graduates and undergraduates will be found in a Special Bulletin relating to courses organized in the Curriculum in Social Work. Student considering enrolling for this work should confer with Professor A. E. WOOD, Director of the Curriculum, Room 205, Economics Building.

In connection with the courses in the social work curriculum the attention of the student is called to courses in closely allied subjects announced in the Division of Hygiene and Public Health, the School of Education, the Law and Medical Schools, and in other departments of the College of Literature, Science, and the Arts. Mention of these related courses is made in the special *Announcement of the Curriculum in Social Work*, which the student should consult.

CONSULTATION HOURS.—At the opening of each semester, to advise with students regarding elections, 10 to 12, Room 205, Ec

During the rest of the year:

Professor COOLEY, *M*, at 11. Room 205, Ec.

Professor WOOD, *M*, at 10; *W*, at 10. Room 205, Ec.

Assistant Professor HOLMES, *Tu, Th*, at 2. Room 205, Ec.

#### FIRST SEMESTER

19. Principles of Sociology. Lectures, quizzes, and thesis. *Four hours credit.* Professor COOLEY, Assistant Professor HOLMES, Mr. CARR, Mr. VREELAND, and Mr. ANGELL.

The immediate administration of the course is in charge of Assistant Professor HOLMES.

This course is not open to freshmen.

This course aims at a systematic study of the underlying principles of social science. The general plan followed is to begin with personal relations in their simplest and most direct form, preceding thence to the more complex forms of association. Cooley's *Human Nature and the Social Order* and *Social Organization* are used.

Each student is required to write a thesis, which must be based in part on personal observation.

- 19g. Principles of Sociology for Graduate Students. The lectures are the same as Course 19. Special quiz sections, conducted by Professor COOLEY, meet *W*, and *F*, at 11. Room 406, General Library. The thesis is expected to be of higher grade than in the undergraduate course.

3. Labor Problems. *Three hours credit.* Professor DICKINSON. (See under Economics.)

24. Social Process. *Two hours credit.* Professor COOLEY.

An advanced course in psychological sociology intended mainly for graduate students, but open to those who have received an A grade in Course 19. Cooley's *Social Process* and perhaps other texts will be used. Special permission must be obtained before electing it.

25. Seminary in Social Theory. Intended especially for candidates for the Doctor's degree majoring in Sociology. *Two hours credit.* Professor COOLEY.

27. Immigration. *Two hours credit.* Assistant Professor HOLMES. The purpose of this course is to give the student an understanding of the problems connected with the influx of great numbers of foreigners into our midst. The racial and national elements among our immigrants, the occupations they enter, their mode of living, their influence in the formation of classes, and what their "assimilation" involves, are some of the topics discussed.

This course must be preceded by Course 19

28. Criminology. *Three hours credit.* Professor WOOD, Dr. RAPHAEL, and Mr. LURIE.

This course deals with the development of criminalological theory, individual and social factors in crime, modern methods in the treatment of criminals, and the causes and treatment of juvenile delinquency. It must be preceded by Course 19.

In connection with this course visits will be made to prisons, reformatories, and other institutions that relate to problems of delinquency. When such visits are arranged it is expected that members of the class go.

The lectures on psychiatric problems in connection with delinquency will be given by Dr. T. RAPHAEL of the University Psychopathic Hospital.

29. Community Problems. *Two hours credit.* Professor WOOD.

This course presents a survey of community problems, and of public and private agencies that have developed in their solution. Emphasis is laid upon the growth of the community consciousness, and upon the endeavor to standardize community life in accordance with it. Among the topics discussed are: housing, city-planning, recreation, Americanization, public health, and the organization of social forces making for welfare.

Lectures, assigned readings, class discussion. Each student is required to prepare a paper upon some subject within the field.

This course must be preceded by Course 19.

The following courses are especially designed for Seniors and Graduate Students who intend to follow some form of social work as a profession, and wish training of a more or less specialized character. Students taking these courses must have had the prerequisite courses in Sociology and other subjects.

23. The Principles of Social Case Work. *Two hours credit.* Mr. JOHNSON.

An introduction to case work methods and problems. In addition to readings, and the preparation of special reports, emphasis is placed upon the presentation of typical case problems as a basis for discussion.

Prerequisites: Sociology 19, 30. Sociology 30 may be taken with Sociology 23.

- 23b. **Psychiatric Social Work.** Wayne County Juvenile Court, Detroit. Dr. PERKINS.

This course is given at the clinic of the Wayne County Juvenile Court in Detroit. It is open only to properly qualified graduate students who are approved by the Dean of the Graduate School as well as by the instructor in the course. For such students the work may be taken to cover a full semester's work of 12 hours towards a graduate degree. Under the circumstances the student will be required to live in Detroit while engaging in this work. The work is divided as follows:

- 23c. **Hospital Social Work.** *Two hours credit.* W, 2-4. University Hospital. Miss KETCHUM.

The aim of this course is to acquaint the student through case work with the effects of sickness, and of social maladjustments following sickness, upon individuals and families. It involves the methods of dealing with the various problems; the correlation of such work with community agencies; and the facilities in the state, county and local communities for dealing with the problems presented. Field work is required, for which additional credit may be given. Among the problems that arise are preventive health work with children, institutional and vocational care for the handicapped, illegitimacy, and follow up work with patients.

Prerequisites: Sociology 19 and 30.

- 28a. **Probation.** *Two hours credit.* Professor WOOD.

Study will be made of probation laws and systems, and of case problems in probation work.

Prerequisites: Sociology 19, 28, 23, and Social Psychiatry 61.

35. **Americanization.** *Two hours credit.* Mr. LURIE.

This course aims at an understanding of the difficult problems of adjustment of immigrant and other racial groups in the United States. Americanization is considered as the uniting of the native and foreign-born in all the important relationships and activities of our common life. Lectures, discussions, and class reports.

Prerequisites, Sociology 19, and 29 or 30.

61. **Social Psychiatry.** *Two hours credit.* Dr. RAPHAEL.

This course is designed primarily for those preparing for social work, and includes the systematic consideration of the principles of psychopathology with a comprehensive survey of the principal psychiatric disorders. Throughout the course the specific societal implications are emphasized with ample case demonstrations. The course is limited to graduates and qualified seniors.

Minimum prerequisites: Sociology 19, and Psychology 7.

63. Social Psychiatry. Field work. *Two to three hours credit.*  
Mrs. MALLORY.

This work is open only to graduate students or to seniors who have reached an advanced stage of specialization in this field. The work involves the making of case histories, and the working out of plans for the solution of the social maladjustments of patients after leaving the hospital. All students taking this work are required to attend one hour a week of class work in which the case histories and the social problems involved are discussed.

Prerequisites: Sociology 19, 28 or 30, 23, and 61. Some of these courses may be taken along with the field work.

#### SECOND SEMESTER

19. Principles of Sociology. Lectures, quizzes, and thesis. *Four hours credit.* Professor COOLEY, Assistant Professor HOLMES, Mr. CARR, Mr. VREELAND, and Mr. ANGELL.

The immediate administration of the course is in charge of Assistant Professor HOLMES.

This is a repetition of the Course 19 given in the first semester. It is open to sophomores, but in no case to freshmen.

For description, see under first semester.

- 19g. Principles of Sociology for Graduate Students. The lectures are the same as for Course 19. Special quiz sections, conducted by Professor COOLEY.

The thesis is expected to be of higher grade than in the undergraduate course.

21. Social Evolution. *Two hours credit.* Assistant Professor HOLMES. The origin and development of social institutions are considered for the purpose of making clear the organic unity of society. Some attention is devoted to heredity and related topics of fundamental interest. The origin of man, and of race, and the evolution of various human institutions such as language, law, religion, the family, and the state, are considered.

This course must be preceded by Course 19.

22. Rural Sociology. *Two hours credit.* Lectures. Assistant Professor HOLMES.

Rural life is presented as a phase of the general social life. The interdependence of city and country is considered. The various forces that are operating to remake the occupation of agriculture, and the community life of rural people are discussed. Some attention is given to the problems that are peculiar to country institutions such as the church and the school.

This course must be preceded by Course 19.

24. Social Process. *Two hours credit.* Professor COOLEY.

This is an advanced course in psychological sociology (the same as that offered in the first semester), intended mainly for

graduate students, but open to those who have received an A grade in Course 19. Cooley's *Social Process*, and perhaps other texts, will be used. Special permission must be obtained to elect it.

- 25a. Seminary in Psychological Sociology. Advanced study of theory. Intended especially for candidates for the Doctor's degree majoring in Sociology. *Two hours credit.* Professor COOLEY.

26. The Family. *Two hours credit.* Lectures and quizzes. Professor WOOD.

This course treats of the development of the family as a social institution; the structure of the primitive family and its relation to early social organization; kinship and marriage systems; the effect of economic progress upon the family; the family in early times; the family in the modern era, its relation to the state and to economic and religious institutions; factors in contemporary problems of the family. This course is especially designed for seniors and graduate students.

This course must be preceded by Course 19.

Lectures, assigned readings, and thesis.

30. Problems of Poverty. *Three hours credit.* Lectures and quizzes. Professor WOOD, and Mr. LURIE.

This course presents in a systematic way the facts concerning poverty, discusses the underlying individual and social causes of destitution, and the methods which society has adopted for its amelioration or elimination. The course begins with a discussion of the feeble-minded, insane, inebriates, and other classes of the unfit or inefficient. Survey is then made of some of the more objective causes of poverty, such as sickness and unemployment. The attention of the student is directed to modern methods for the care of dependent classes, and students will be required to visit local and state institutions when practicable.

This course must be preceded by Course 19.

- 23f. Hospital Social Work. *Two hours credit.* Miss KETCHUM.

This course is a continuation of Sociology 23e given the first semester. It includes discussion of problems of case work, administration and research. It is open only to those who have had the first course.

- 23g. Child Welfare. *Two hours credit.* Mr. LURIE.

This course presents the important phases of social case work with the problems of child life, particularly the procedure involved in the proper care of dependent, neglected, delinquent, and unusual children. Subjects considered are: the conservation of child life, child labor, juvenile delinquency, the ille-



gitimate child, defective and abnormal children. Lectures, case studies, and class reports.

Prerequisites: Sociology 19, 23, and 30. The last two may be taken along with course 23g.

The following courses are specially designed for Seniors and Graduate Students who intend to follow some form of social work as a profession, and wish training of a more or less specialized character. Students taking these courses must have had the prerequisite courses in Sociology and other subjects. Before electing them the student should consult Professor Wood, 205 Economics Building, or the instructor giving the course:

- 23a. The Principles of Social Case Work. *Two hours credit.* Mr. JOHNSON.

This is a continuation of Course 23, and in most cases open only to those who have had the preceding course. The second semester is given up mostly to a study of case records and problems.

- 23c. Psychiatric Social Work. Wayne County Juvenile Court, Detroit. Dr. PERKINS.

This course is a continuation of Sociology 23b, given the first semester.

48. Community Organization. *Two hours credit.* Professor WOOD.  
This course is an attempt to study the social problems of particular communities, and the organized efforts within these communities towards a solution of these problems. The problems dealt with are largely those covered in Sociology 29, i. e., housing, health, recreation, and Americanization. Attention will be given to specialized forms of community organization, such as community councils, financial federations, the social unit, and state, county, and city welfare departments.

Prerequisites: Sociology 19 and 29 or 30.

- [49. Community Surveys. *Two hours credit.* Professor WOOD.  
Omitted in 1923-1924.]

50. The Administration of Social Agencies. *Two hours credit.* Mr. NORTON.

This course will deal chiefly with the development and administration of financial federations for community work, including study of the structure of such organizations, and their policies and methods of operation.

Prerequisites: Sociology 19, and 29 or 30.

- [51. Institutional Management. *Two hours credit.*  
Omitted in 1923-1924.]

62. Social Psychiatry. *Two hours credit.* Dr. RAPHAEL.

This course is a seminary in advanced psychiatry and psychiatric social service, including didactic lectures, case reports, and as-

signed readings. Limited to graduates and qualified seniors.  
Prerequisites: Sociology 23 and 61.

64. Field Work in Social Psychiatry. *Two to three hours credit.*  
Mrs. MALLORY.

This course is a continuation of Course 63, and open only to those who have done creditable work in the previous course.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925.)

- 19s. Social Organization. *Two hours credit.* Assistant Professor HOLMES.  
21s. Social Evolution. *Two hours credit.* Assistant Professor HOLMES.  
35s. Americanization. *Two hours credit.* Mr. LURIE.  
28s. Criminology. *Two hours credit.* Professor WOOD.  
29s. Community Problems. *Two hours credit.* Professor WOOD.  
Graduate work.

ENGLISH

(Group I)

Students who plan to take only one year of English literature should ordinarily elect Courses 1 and 2. These courses satisfy the requirement in the literary-law curriculum and in other combined curricula.

Course 1 or its equivalent is prerequisite to all other English courses. This means that students wishing to elect advanced courses must satisfy their instructors that they are capable of reading modern literature in a mature and intelligent way and that they are acquainted with the authors read in Course 1.

Students who have completed Course 1 should normally elect as a second course: Course 2, 4, or 14. Students who plan to take considerable work in literature are advised to save time by fulfilling the requirement in modern literature without taking Course 1. This may be accomplished through individual reading under the direction of the English department. Students who do not take Course 2 should take Course 4.

One normal sequence for students who do not elect Course 1 is Course 4 and 33 or 30, with individual reading of the nineteenth century authors read in Course 1. These courses may be followed by Courses 37 and 38, or, preferably, by a succession of courses in earlier English literature, e. g., 5a, 6, 6a, 17, 19, 29. These courses assume such knowledge of the particular periods dwelt with as is obtained in the corresponding portions of Courses 37 and 38, but such knowledge may be obtained also through individual study under the direction of the department.

Credit is not allowed for both Course 2 and Course 4. Course 1 cannot be taken after Course 2. Neither Course 1 nor Course 2 can ordinarily be taken after any other course in the department.

The foregoing restrictions become effective in the year 1923-1924. Students who have taken the General Survey of English Literature formerly numbered 1 and 2 (now discontinued) may not elect Courses 37 or 38 or Course 1 or 2.

Students who aim to acquire a knowledge of the English language in its historical aspects are advised to take Course 3 (Old English) followed by Course 3c (Chaucer). Students who are preparing to teach English are strongly advised to take at least one of these linguistic courses, or Course 7 (English Historical Grammar). Graduate students who have had one of these courses as undergraduates are advised to elect a second course from this group in their first year of graduate study.

Beginning with the year 1923-1924 students who wish to teach English may obtain the departmental recommendation by successfully passing an examination offered by the department. The nature of the examination and suggestions for the preparation therefor are outlined in the pamphlet issued by the English department.

CONSULTATION HOURS. — During the registration period, a departmental representative, daily, 10 to 12. Room 208, T. H.

During the first week of the first semester members of the English staff will be in Room 208, T. H., at 4 p. m. each day, to confer with students concerning their work. Hours for the remainder of the year will be posted later.

*Primarily for Undergraduates.*

1. Introduction to English Literature. *Three hours credit.* Professors CAMPBELL, HUMPHREYS, GINGERICH, FRIES, Assistant Professors RAYMOND and BREDVOLD, Mr. MYRICK, Dr. FINNEY, Dr. MOORE, Mr. MACK.

An intensive study of representative works of Browning, Carlyle, Emerson, Swift, Milton, and others, supplemented by assigned collateral reading.

Open only to students who have taken no other course in the department.

2. Introduction to English Literature. *Three hours credit.* Assistant Professor BREDVOLD and Mr. MYRICK.

This course is a continuation of English 1 and is designed primarily for students intending to take no further work in the department. An intensive study of representative works of Wordsworth, Shelley, Keats, Swift, Milton, and Shakespeare.

4. Shakespeare. *Three hours credit.* Professors TILLEY and GINGERICH and Dr. FINNEY.

A critical reading of *Othello*, *Henry IV, Part 1* and *The Tempest*, supplemented by collateral reading of six other plays.

- 4a. Shakespeare. *Two hours credit.* *Tu, Th.* Professor CAMPBELL and Assistant Professor RAYMOND.

A critical reading of *King Lear*, *Richard III*, and *Twelfth Night*.

This is a continuation course for those who have had Course 4, or its equivalent.

7. Historical Grammar. *Three hours credit*. Professor MOORE.  
An elementary study of the historical development of the sounds and inflections of modern English.
14. American Literature. *Two hours credit*. Professor FRIES, Assistant Professor RAYMOND, and Dr. MOORE.  
A general survey of American literature. Most of the time will be devoted to major authors.  
Must be preceded by at least one course in English literature.  
Open to upperclass students only.
22. Contemporary Drama. *Two hours credit*. Professor CAMPBELL.  
A study of the drama of the present day, with special attention to the inter-relations of the English drama with that of the continent.  
Open only to seniors.
24. The English Bible, its Literary Aspects and Influence. *Two hours credit*. Professor HUMPHREYS.  
A general study of the Bible as a literary masterpiece and as an influence in English literature. The King James version will be used in class.  
Must be preceded by at least one course in English literature.

*For Undergraduates and Graduates*

3. Old English. *Three hours credit*. Professor MOORE.  
This course is intended to provide students with a basis for the study of English grammar and the history of the English language; to give them a first-hand acquaintance with some representative prose works of the Old English period; and to prepare them to read *Beowulf* in its original form.
- 5a. The English Drama before Shakespeare. *Three hours credit*. Professor TILLEY.  
Lectures on the earlier forms of the drama up to Shakespeare, together with an intensive study of two of the more important plays of the period.  
Open to those who have had a course in Shakespeare.
6. English Literature from the Restoration to 1798. *Three hours credit*. Assistant Professor BREDVOLD.  
A study of the rise of Classicism in English Literature, and of the progress of the movement through the Restoration and Queen Anne periods.
13. Introduction to the Poetry of Browning. *Three hours credit*. Professor STRAUSS.

- A study of selections from the *Dramatic Lyrics, Dramatic Romances, Men and Women, and Dramatis Personae*. The course is designed primarily for juniors and seniors.
17. Introduction to Mediæval Literature. *Two hours credit*. Professor HANFORD.  
A general study of the traditions and ideals of the Middle Ages in English and continental literature. The reading may be done if necessary in translation.
18. The Development of the English Novel. *Three hours credit*. Professor STRAUSS.  
Open to seniors and graduate students.  
A study of the rise of the novel in England as an art form, with an attempt to discover the principle of its development.
- [19. Studies in the English Literature of the Middle Ages. *Two hours credit*. Professor HANFORD.  
The subjects for study will be selected from the following topics: the Middle English lyric; the romance cycles; the literature of vision; Middle English humorous and satiric poetry; the popular ballad.  
Open to students who have taken Course 17, or 23 and 23a, or 3c and 3d.  
Omitted in 1923-1924.]
30. The Age of Wordsworth. *Three hours credit*. Professor GINGERICH.  
A considerable portion of Wordsworth's works will be read in class. Wordsworth's place in the Romantic Movement in English literature will be fully considered. Coleridge, Scott, Byron, Shelley, and Keats will be studied in relation to the Romantic Movement.
32. The Age of Milton. *Three hours credit*. Professor HANFORD.  
This course includes a general study of the life and works of Milton and an account of the main traditions of English literature from the death of Shakespeare to the Restoration.
35. Shakespeare's Comedies. *Three hours credit*. Professor TILLEY.  
A study of the dramatic structure and of the sources of Shakespeare's comedies. Lectures and discussions.  
Open to students who have taken Courses 1 and 2, or 4, or 4a.
37. Outline History of English Literature from the Beginning to the death of Shakespeare. *Three hours credit*. Professor HANFORD.  
Prerequisite: A general acquaintance with the major nineteenth century English authors and with Shakespeare. Students who have had Courses 1 and 2 and no other course in the department may elect this course only by special permission. Strongly recommended for candidates for the Teacher's Certificate.

Graduate students and students who have had any two of the following (5a, 17, 19, 20, 29) may elect this course as

37a. *Two hours credit.*

39. Modern English Grammar. *Three hours credit.* Professor FRIES.  
A study of the English language since 1500 with especial reference to syntax.

*Primarily for Graduates.*

11. Seminary in Milton. *Two hours credit.* Professor HANFORD.  
A survey of Milton's life and works, with special reference to problems of fact and interpretation; the position of Milton in seventeenth century literature; Milton's influence and the history of Milton criticism.
12. Shakespeare Seminary. *Two hours credit.* Professor CAMPBELL.  
A survey of Shakespeare's entire work, with special reference to problems of historical and literary fact, and of Shakespeare's relation to the drama of his age.
15. Seminary in American Literature. *Two hours credit.* Professor GINGERICH.  
Studies in the creative period of American literature (1820-1860), dealing with Emerson, Hawthorne, Poe, Whitman, and others. Special consideration will be given to the influence of English upon American writers.  
Open to graduate students and to others who receive permission.
21. Seminary in the English Language. *Two hours credit.* Professor MOORE.  
The subject for 1923-1924 will be selected after consultation with the class from the following: Old English historical grammar; Old English dialects; Middle English historical grammar; Middle English dialects; problems in Modern English grammar.
23. Middle English. *Three hours credit.* Professor MOORE  
The purpose of this course is to trace the process by which Old English developed, through the stage represented by the language of Chaucer, into Modern English, and to give the student some acquaintance with the literature of the thirteenth and fourteenth centuries.  
Open to students who have had Courses 3 and 3c or their equivalents, and to others who obtain special permission.
- [26. Ben Jonson. *Two hours credit.* Professor TILLEY.  
A study of problems relating to Jonson's personality and dramatic method.  
Omitted in 1923-1924.]
27. Studies in Modern English Literature. *Two hours credit.* Professor STRAUSS.

In 1923-1924 the subjects for study will be selected from the following: The Classical Movement; Seventeenth Century Puritanism; Restoration Comedy; Eighteenth Century Essayists; the Rise of Romanticism; Development of the Novel; Nineteenth Century Fiction, Browning's Major Works.

## SECOND SEMESTER

*Primarily for Undergraduates*

1. Introduction to English Literature. *Three hours credit.* Mr. MYRICK, Dr. FINNEY, Dr. MOORE, Mr. MACK.

This is a repetition of Course 1 of the first semester. Open only to students who have taken no other course in the department.

2. Introduction to English Literature. *Three hours credit.* Professors CAMPBELL, HUMPHREYS, FRIES, Assistant Professors RAYMOND and BREDVOLD, Mr. MYRICK, Dr. FINNEY, Dr. MOORE, Mr. MACK.

This is a continuation of Course 1 and is designed primarily for students intending to take no further work in the department. An intensive study of Wordsworth, Shelley, Keats, Pope, Shakespeare, and selected critical essays.

Open only to students who have taken English 1, and no other course, in the department. Students are expected to continue in the sections corresponding to those in which they were enrolled in Course 1, except by special permission.

4. Shakespeare. *Three hours credit.* Professor HANFORD and Assistant Professors RAYMOND and BREDVOLD.

A critical reading of *Othello*, *Henry IV, Part I*, and *The Tempest*, supplemented by collateral reading of six other plays.

- 4a. Shakespeare. *Two hours credit.* *Tu, Th.* Professors TILLEY and Gingerich, and Dr. FINNEY.

A critical reading of *King Lear*, *Richard III*, and *Twelfth Night*.

This is a continuation course for those who have had Course 4 or its equivalent.

14. American Literature. *Two hours credit.* Professor GINGERICH, Assistant Professor RAYMOND, and Dr. MOORE.

The same as Course 14 of the first semester. Must be preceded by at least one course in English literature.

- 22a. Technique of the Drama. *Two hours credit.* Professor CAMPBELL.

A practical study of dramatic form and structure based upon analysis of modern plays and upon recent critical literature.

This course is a continuation of Course 22.

25. The English Bible, Its Literary Aspects and Influence. *Two hours credit.* Professor HUMPHREYS.

Course 25 is a continuation of Course 24. It must be preceded by at least one course in English literature.

*For Undergraduates and Graduates*

3c. Chaucer. *Three hours credit.* Professor MOORE.

After making a careful study of the *Prologue* and learning the essential facts in regard to the pronunciation and inflections of Chaucer's language, students will go on to the more rapid reading of about six of the *Canterbury Tales*.

5b. The English Drama, from Shakespeare to the Closing of the Theatres, 1642. *Three hours credit.* Professor TILLEY.

Course 5b is a continuation of Course 5a.

6a. English Literature from the Restoration to 1798. *Three hours credit.* Assistant Professor BREDVOLD.

The rise and progress of Romanticism in the Eighteenth Century; conservative opposition to Romanticism; the interrelation of French and English Romantic influences.

9. The Theory of Grammar. *Two hours credit.* Professor MOORE.

A study of the theory of grammar, with special reference to English, from the point of view of general linguistics and the psychology of speech.

Open to seniors and graduate students who receive special permission.

Courses 9 and 16 will not both be given the same year, but only the course for which there is the greater demand.

13a. The Poetry of Browning. *Three hours credit.* Professor STRAUSS.

A study of several of Browning's major works, such as *Pippa Passes*, *Paracelsus*, *A Soul's Tragedy*, etc.

Course 13a should be preceded by Course 13.

18a. Prose Fiction of the Nineteenth Century. *Three hours credit.* Professor STRAUSS.

Course 18a is a continuation of Course 18. Lectures, discussions, and readings in the works of Scott, Austen, Bulwer-Lytton, Disraeli, Dickens, the Brontë Sisters, George Eliot, Trollope, Reade, Kingsley, Meredith, Blackmore, Hardy, Stevenson, and others. Open to students who have completed Course 18, and to others who receive permission.

29. English Literature of the Renaissance. *Two hours credit.* Professor HANFORD.

The transition from the Middle Ages. English Humanism. Effects of the Reformation. Foreign Relations of English Literature. Elizabethan non-dramatic prose and poetry.

30. The Age of Wordsworth. *Three hours credit.* Professor GINGERICH.



A considerable portion of Wordsworth's works will be read in class. Wordsworth's place in the Romantic Movement in English literature will be fully considered. Coleridge, Scott, Byron, Shelley, and Keats will be studied in relation to the Romantic Movement.

33. Victorian Literature. *Three hours credit.* Assistant Professor: RAYMOND.

This course will comprise a study of the works of the great poets and prose writers of the Victorian epoch in the light of the historical background, social and intellectual movements and literary development of the age.

- 35a. Shakespeare's Tragedies. *Three hours credit.* Professor TILLEY. A study of the dramatic structure and of the sources of Shakespeare's tragedies. Lectures and discussions. Open to students who have had Course 1 and 2, or 4, or 4a.

36. Observation and Special Methods in English. *Two hours credit.* Professor FRIES. See Secondary Education 4c in the Announcement of the School of Education

38. Outline History of English Literature from the death of Shakespeare to 1798. *Three hours credit.* Professor HANFORD. Strongly recommended for candidates for the Teacher's Certificate.

Prerequisite: English 37 or its equivalent. Graduate students and students who have had any two of the following (6, 32, 5b, 6a,) may elect this course as

- 38a. *Two hours credit.*

*Primarily for Graduates*

8. Beowulf. *Three hours credit.* Professor MOORE. Reading of the text, with study of the meter and literary characteristics of Old English poetry. Open to students who have had Course 3 or its equivalent.
10. The Methods of Comparative Literature. *Two hours credit.* Professor CAMPBELL. A survey of the aims and methods of comparative literature, illustrated by the analysis of typical studies already made and by investigations carried on by each member of the class. The special field for study in 1923-1924 will be European Comedy since the Renaissance.
- 11a. Seminary in Milton. *Two hours credit.* Professor HANFORD. Thesis Course. Open to students who have taken Courses 11, 29, or 32.
- 12a. Shakespeare Seminary. *Two hours credit.* Professor CAMPBELL. A continuation of English 12.

16. Old English Poetry. *Two hours credit.* Professor MOORE.  
Critical reading of the short poems embodying Germanic material, and of representative works of the Cædmonian and Cynewulfian schools of Christian poetry; examinations of the literary problems connected with the texts that are read. For students who have had Courses 3 and 8.  
Courses 9 and 16 will not be both given the same year, but only the course for which there is the greater demand.
20. Spenser and His Age. *Two hours credit.* Professor TILLEY.  
An intensive study of Spenser as the focal point of Elizabethan non-dramatic literature.
- 21a. Seminary in the English language. *Two hours credit.* Professor MOORE.  
This course is a continuation of Course 21.
- 23a. Middle English. *Two hours credit.* Professor MOORE.  
This course is a continuation of Course 23.
28. Studies in Modern English Literature. *Two hours credit.* Professor STRAUSS.  
Course 28 is a continuation of Course 27.  
Open only to graduate students.
31. Studies in the Romantic Poets. *Two hours credit.* Professor GINGERICH.  
For the current year some of the following topics will be investigated: Wordsworth's Early Naturalism, The Influence of the French Revolution of Wordsworth, Wordsworth's Humanism, Coleridge's Contribution to the Theory of Poetic Diction, Coleridge's Transcendentalism, Shelley's Attitude toward Nature, Shelley's "Prometheus Unbound," Keat's "Hyperion."

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- 1a. Introduction to English Literature. *Two hours credit.* Assistant Professor BREDVOLD.
- 3a. Old English. *Two hours credit.* Professor MOORE.
4. Shakespeare. *Two hours credit.* Assistant Professor BREDVOLD.
5. Chaucer. *Two hours credit.* Professor MOORE.
135. Introduction to the Poetry of Browning. *Two hours credit.* Professor STRAUSS.
14. American Literature. *Two hours credit.* Professor FRIES, and Assistant Professor RAYMOND.
15. Seminary in American Literature. *Two hours credit.* Professor GINGERICH.

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- 19a. The Poetry of Tennyson, Arnold, and Swinburne. *Two hours credit.* Assistant Professor RAYMOND.
- 19b. English Prose of the Victorian Era. *Two hours credit.* Assistant Professor RAYMOND.
- 5c. The English Drama before Shakespeare. *Two hours credit.* Professor STRAUSS.
- 25a. The English Bible. *Two hours credit.* Professor HUMPHREYS.
30. Wordsworth and his Contemporaries. *Two hours credit.* Professor GINGERICH.
32. Eighteenth Century Romanticism. *Two hours credit.* Professor HUMPHREYS.
- 32a. Milton. *Two hours credit.* Assistant Professor BREDVOLD.
- 35s. Shakespeare's Tragedies. *Two hours credit.* Professor HANFORD.
- 36s. The Teaching of English. *Two hours credit.* Professor FRIES.

### FINE ARTS

The aim of the courses offered in this department is to give the student a knowledge of the origin and development of the Fine Arts throughout the ages. Together with the history of their growth are studied their principles, technique, appreciation and criticism, and the relation of the art of the various peoples to their history, religion, literature and daily life.

A general knowledge of history is presumed. A knowledge of Latin and Greek and ability to read French, German, and Italian will be of assistance in advanced courses.

It is strongly urged that the courses be elected in their numerical sequence. Course 1 is offered each semester and is prerequisite for all others.

*These courses may be elected by Juniors and Seniors only.*

#### FIRST SEMESTER

1. General Introductory Course in the Fine Arts. The origin, development, and essential principles, and technique of Architecture, Sculpture, and Painting, including a brief survey of their history from prehistoric times to the present. Textbook, S. Reinach's *Apollo*. Illustrated lectures, required reading, and written tests. *Three hours credit.* Assistant Professor DONALDSON.  
(This course or an equivalent, satisfactory to the instructor is a prerequisite for all other courses in this department.)
3. Greek Art. The history of the Fine Arts among the Greeks, to the Roman period, with a preliminary survey of Egyptian and Mesopotamian art. Special attention is given to the great

sculptors of the fifth and fourth centuries, B. C. Illustrated lectures, required reading, written tests. *Three hours credit.* Assistant Professor DONALDSON.

5. Italian Renaissance Art. The history of the Fine Arts in Italy in the Fifteenth and Sixteenth Centuries, with special attention to the development of Italian painting. Illustrated lectures, required readings, written tests. *Three hours credit.* Assistant Professor DONALDSON.

#### SECOND SEMESTER

1. General Introductory Course. A repetition of Course 1 of the first semester. *Three hours credit.* Assistant Professor DONALDSON.
6. The Renaissance Outside of Italy. The history of Spanish, French, Flemish, Dutch, German, and English Renaissance Art, (including the nineteenth century). Illustrated lectures, required reading, written tests. *Three hours credit.* Assistant Professor DONALDSON.
8. American Art. The history of the Fine Arts (architecture, sculpture, and painting), in the United States from Colonial times to the present. Illustrated lectures, required reading. *Three hours credit.* Assistant Professor DONALDSON.

#### FORESTRY

Most of the courses in Forestry are intended primarily for the training of professional foresters, but are open to all students of the University who are properly prepared to take them and who obtain the permission of the professor in charge.

However, a certain number of courses are now offered by the Forestry department that are non-technical in character and are open to all students of the University *without special preparation*. The aim of these courses is to enable students in other departments to become informed with regard to certain fundamental phases of forestry work and forestry conditions in their relation to our national business and general welfare. These general courses are 21, 22, 23, 24, and 24a.

All Forestry courses are given in the Natural Science building.

(For further information regarding Forestry courses, see the special Forestry Announcement.)

CONSULTATION HOURS.—Throughout Registration week, Professor YOUNG, or his representative, will be in Room F 214, N. S., 10 to 12 daily, to consult with students and advise them in their elections.

#### FIRST SEMESTER

1. Introduction to Forestry. *Four hours credit.* Assistant Professor WATSON.

A general presentation of the subject, its history, objects, methods, as well as its economic importance.

Prerequisite: Botany 1.

3. Timber. *Two hours credit.* Assistant Professor CRAIG.  
Continuation of Course 4.
5. Silvics. *Four hours credit.* Lectures and laboratory or field work. Professor YOUNG.

Life history of the stand of trees in the forest from its start to maturity and death. The factors of site (climatic, soil, physiographic, and biotic) in their relation to the occurrence of forest and the development of forest types and stands of timber. The reaction of the stand on the site. Study of the principal forest types in the several regions of the United States. Field methods for the study of site conditions, of the silvical characters of species and their behavior in stands.

Prerequisites: Botany 13 and 14, and Forestry 1 and 6.

7. Forest Mensuration. *Four hours credit.* Lectures and laboratory or field work. Assistant Professor CRAIG.

Timber estimating and scaling; methods of surveying and mapping of forest lands; methods used in forest investigations for measuring volumes of single trees and yield in volume of entire stands.

Prerequisites: Surveying 12 and 13, Botany 13 and 14, Mathematics 1 and 2.

9. Silviculture. *Four hours credit.* Lectures and field work. Professor YOUNG.

Study of natural reproduction of the forest. Thinning practice and the care of stands to improve their condition and growth. The various methods of reproduction and care are considered especially with reference to their application to conditions in the United States and Canada. Instruction in marking trees to be cut in thinnings and final harvest.

Prerequisites: Forestry 5 and 10.

- 11a-c. Special or Advanced Work in Forestry. This course may be elected only by special permission of the professor in charge.  
*Two, three, or four hours credit.*

This course is elected as:

11a. Management. Professor \_\_\_\_\_.

11b. Silviculture and Timber. Professor YOUNG.

13. Forest Utilization. *Three hours credit.* Lectures and field work. Assistant Professor CRAIG.

Methods of realizing upon forest resources. Uses of timber, points of production and market. Methods of manufacture, costs and values. Minor forest products. Logging and sawmilling. Stumpage valuation. Timber sale contracts and sale administration. Miscellaneous forest uses.

Prerequisites: Surveying 12 and 13 and Forestry 1.

15. Forest Management. *Four hours credit.* Professor ————. Forest regulation; surveys and reports of forest properties; preparation and revisions of forest working plans. Division of forest into working units; size, form, use, and importance of the working section, the lot, or compartment, and the cutting series. Considerations entering into the choice of species, methods of silviculture, choice of rotation, regulation of cut, or harvest; the lines and extent of improvements, methods of utilization and protection, and the relation of these principal lines of work as they affect the working plan. The Normal Forest. Detailed plans and bookkeeping in Forestry.

Prerequisites: Forestry 7, 8, 9, 10, 13, and 14.

19. Forest Protection. *Three hours credit.* Assistant Professor WATSON.

Forest laws, trespass and trespass procedure. Occurrence, prevention, and suppression of forest fires. Prevention and suppression of insect-injury to forests.

Prerequisites: Forestry 9 and 10.

21. Conservation with Special Reference to the Forest Resources of the United States. *One hour credit.* Assistant Professor WATSON.

Development of the Public Land Policy of the United States; characteristics and status of the natural resources; forest products and their relation to our industries; forest influences on climate and water supply; methods by which the forester handles timber properties.

The treatment of the subject in general and from the standpoint of public economy. Open to all students.

23. General Forestry. *Two hours credit.* Professor YOUNG.

The forester's work and problems he has to solve. Economic importance of forestry. History of forestry in the United States and abroad. Our timber resources and their distribution. Factors affecting tree-growth. Influences of forest upon climate, stream-flow, and erosion. How the forest is reproduced and cared for. Forestry literature.

Open to all students. No prerequisites.

This class is limited to fifty students. All those wishing to elect the course must consult the instructor in advance.

#### SECOND SEMESTER

4. Timber. *Two hours credit.* Lecture and laboratory work. Assistant Professor CRAIG.

Structure and identification of woods used for timber. Study of mechanical properties (strength and resistance) by actual tests. Methods of seasoning and preservative treatment of woods.

Prerequisites: Physics 1, Botany 13 and 14.

6. Dendrology. *Four hours credit.* Assistant Professor WATSON.  
Study of the more important species of forest trees; development and growth of the individual tree; requirements as to soil, climate, and light; resistance to the ordinary injuries (insects, fungi, storm, drought, etc.); value and use of the wood; usual occurrence in the wild woods, and the share of any species in the formation of types in the several forest regions of our country. Classification and identification of tree species.
8. Forest Mensuration. Continuation of Course 7. *Four hours credit.* Lectures and field work. Assistant Professor CRAIG.  
Prerequisite: Forestry 7.
10. Silviculture. *Four hours credit.* Lectures and field work. Professor YOUNG.  
Study of artificial reproduction of the forest. Methods of sowing and planting forest. Nursery practice; the collection, extraction, cleaning, testing, and storage of tree seeds; the growing of plant stock. Special problems in the restocking of bare lands.  
All of the operations of nursery and planting work are performed by the student in the course.  
Prerequisite: Forestry 5.
- 12a-c. Special or Advanced Work in Forestry. This course may be elected only by special permission of the professor in charge.  
*Two, three or four hours credit.*  
This course is elected as:
  - 12a. Management. Professor ———.
  - 12b. Silviculture and Timber. Professor YOUNG.
14. Forest Utilization. Continuation of Course 13. *Three hours credit.* Assistant Professor CRAIG.  
Prerequisite: Forestry 13.
16. Forest Management. *Four hours credit.* Professor ———.  
Forest valuation; appraisal of land and timber; relation of capital and income; per cents made in forestry; income value of soil as a measure of value for land and for forest operations (forest statics); bases of forest taxation, insurance, and for comparisons in the right use of land; forest history and policies abroad and in the United States; forest legislation, national and state, with special reference to the organization of Forestry Commissions and other administrative bodies, and the definition of their authority and work. Especially designed for those interested in proper development of state work in forestry.  
Prerequisite: Forestry 15.

18. Forest Administration. *Three hours credit.* Assistant Professor WATSON.  
The United States Forest Policy and Land Laws. Organization and work of the United States Forest Service. Detail of National and State Forest Administrations. Trespass and fire law.  
Open only to forestry students.
20. Specific Silviculture. *Two hours credit.* Assistant Professor WATSON.  
Study of feasible methods of silviculture for the forest regions of the United States. Methods of collection of data and preparation of silvicultural working plans.  
Prerequisites: Forestry 9 and 15.
22. Conservation with Special Reference to the Forest Resources of the United States. Lectures. *One hour credit.* Assistant Professor WATSON.  
(See Course 21 in first semester for description of course.)  
The treatment of the subject is general and from the standpoint of public economy. Open to all students.
24. General Forestry. Lectures. *Two hours credit.* Professor YOUNG.  
The forester's work and problems he has to solve. Economic importance of forestry. History of forestry in the United States and abroad. Our timber resources and their distribution. Factors affecting tree-growth. Influences of forest upon climate, stream-flow, and erosion. How the forest is reproduced and cared for. Forestry literature.  
Non-technical treatment of the subject.  
Open to all students. No prerequisites.  
This class is limited to fifty students. All those wishing to elect this course must consult the instructor in advance.
- 24a. Identification of Trees and Commercial Woods. *Two hours credit.* Professor YOUNG.  
This course may be taken as a separate course or as supplementary to Course 24 by students who desire field and laboratory work in the identification of wood and of our common trees. Open to all students.  
This class is limited to fifteen students. All those wishing to elect this course must consult the instructor in advance.

#### French

(See Romance Languages and Literatures)

### GENERAL LINGUISTICS AND COMPARATIVE PHILOLOGY

#### (GROUP I)

The courses announced below are designed for students of both ancient and modern languages. They aim to familiarize the students



with the general principles and methods of the Science of Language and to present the most important facts in the life and growth of language. Attention is called to the various courses in Psychology. Attention is called to the course on Grammar offered by Professor MOORE in the department of English.

The courses here described, with the exception of Course 6g, may be counted for credit in Group II, if the student prefers.

#### FIRST SEMESTER

- [5f. Principles of Linguistic Science. *Two hours credit.* Professor MEADER.

This course aims to give a broad general foundation, such as will enable the student or teacher to judge intelligently of the nature of specific phenomena. Among the questions treated will be: the relation of psychology to linguistic science; the nature of language; speech sounds and their changes; changes in the meanings of words; discussion of grammatical categories (noun, verb, mood, etc.); classifications of languages, the genesis of speech. Lectures and recitations.

Omitted in 1923-1924.]

7. Special Problems in Comparative Philosophy. *One to three hours credit.* Professor MEADER.

- 101a, b, c. Practical Phonetics. *Three or five hours credit.* Professor MEADER and Mr. MUYSKENS.

The purpose of this course is to give the student a general knowledge of the movements involved in the production of speech sounds and a thorough drill in the pronunciation of French and Spanish. It is designed primarily for those preparing themselves to teach the Romance languages, but will be valuable to all students interested in language study. Students of French elect as 101a; students of Spanish as 101b; students taking both sections elect as 101c. Before electing the Spanish section, students must consult Professor WAGNER.

9. Practical Phonetics. *Two hours credit.* Professor MEADER.

The object of this course is to familiarize the student with the anatomy and physiology of the speech organs and the manner of production of speech sounds. It is designed both for students who desire to acquire a basis for attaining an accurate pronunciation of foreign languages and for prospective teachers who wish to learn the best methods of teaching difficult foreign sounds.

34. The Psychology of Language. *Two hours credit.* Lectures and discussions. Professors PILLSBURY and MEADER.

Among the subjects treated are: the laws of thought and language; the history of linguistic theory; language as a form of expression; the genesis of speech; and the psychology of syntax.

Professor SCOTT will give four lectures on the genesis of speech.

11. Seminary in Phonetics. Primarily for graduate students who desire to do research work in Phonetics. *Credit to be arranged.* Professor MEADER.

#### SECOND SEMESTER

- 2a. Seminary in Etymology and Semantics. Primarily for graduates. *Credit to be arranged.* Professor MEADER.
- 4f. The Methods and Problems of Linguistic Science. Primarily for graduates. *Credit to be arranged.* Professor MEADER.

- 6g. Comparative Philology. *Two hours credit.* Professor MEADER.

The aim of this course will be the study of the origin and development of the sounds, inflections, and syntactical forms of the Indo-European languages. The course will deal with the methods and principles of Comparative Philology, the chief characteristics of the Indo-European languages, their relationships and classification, relationships between the sounds and inflections of the Greek, Latin (French), and Germanic languages, accent and vowel gradation (Ablaut), analogy, comparative syntax, bibliography of comparative philology.

42. General Course in Experimental Phonetics. Lectures and laboratory work. *One, two, or three hours credit.* Professors MEADER and SHEPARD.

This course, which is designed for students of psychology, language, oratory, and music, will deal with the anatomy and Physiology of the human voice, the production of speech sounds, description and classification of sounds, mechanical methods of recording speech sounds, study of speech records. As the number of students admitted to this course will be limited, those desiring to elect it are advised to apply early to one of the instructors in charge.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- 54s. Principles of the Science of Language and Comparative Philology. *Two hours credit.* Professor MEADER.
- 51s. Practical Phonetics. Professor MEADER.

### GEOGRAPHY

#### (GROUP III)

The courses in Geography are listed in four groups: (a) general, elementary courses, 1 to 5; (b) regional courses, 10 to 19; (c) special phases of geography, 20 to 29; (d) research and special work, 30, 31. Courses 1 and 2 are the beginning courses for students who desire an elementary cultural knowledge of the subject, as well as for those who intend to specialize in the department.

Students specializing in Geography are directed to consult with the staff as early in their course of study as possible regarding a plan of elections in cognate subjects. Such students should secure work (a) in the physiographic, soil, and economic phases of geology; (b) in the principles of economics and sociology; (c) in the economic relations of forestry; and (d) in certain cases, in history.

**SUMMER FIELD COURSE.** A summer field course in Geography is offered (Course 5) in the southern Appalachians and adjacent areas. The course is open to a limited number of men. It provides a type of training and observation that is not paralleled by any of the work of the regular school year. Further information may be secured from the Director, Professor \_\_\_\_\_.

**CONSULTATION HOURS.** — Mr. HALL may be consulted regarding elections in Geography in Room G 440½, 10 to 12 daily, during registration week.

#### FIRST SEMESTER

1. Elements of Geography. *Four hours credit.* Lectures, recitations and field work. Assistant Professor McMURRY and Mr. JAMES.

This course and Course 2 constitute a unit through the year. No credit toward graduation is counted for this course until Course 2 is completed satisfactorily.

The first part of the course deals with the characteristics of the physical environment and their significance to man. This is followed by a study of the geographic regions of the world, with special reference to stage of development and distribution of population. The students are familiarized with the uses of maps and receive incidental drill in geographic location. Senior college students may elect this course as 1s and will receive but *three hours credit*.

3. Geography of Commercial Production. *Three hours credit.* Lectures and recitations. Assistant Professor McMURRY and Mr. HALL.

Geographic elements in the production of the principal commodities of world commerce. The great staples of world trade are studied with reference to the principal places of production. Foodstuffs, textile materials, forest products, and the minerals of industry are the principal groups considered. Special attention is given to the factors localizing great manufacturing districts.

11. Geography of South America. *Three hours credit.* Mr. JAMES. A study of agricultural, mining, and manufacturing development, and the distribution of population under the widely differing conditions of environment in the South American countries. Future uses of the great undeveloped agricultural, mineral, and forest resources, and the possibilities of trade

with the United States in these products, as well as the development of South American markets for American manufactured goods, are considered. The development of transportation facilities, as affecting industries, location, and relative importance of seaports, ocean trade routes, and the importance of the Panama Canal are taken up. Argentina, Chile, and Brazil are specially considered, with emphasis on commercial relations with the United States.

Prerequisite: Geography 3.

- [19. Geography of Michigan. *Two hours credit.* Professor \_\_\_\_.

This course is intended to familiarize the student with the regional economic conditions and problems of the state. The bases of the recent industrial transformation of southern Michigan, the economic situation and outlook for Michigan farming, the impending extinction of the lumber industry and the decadence of the lumber centers, and the significance of mining are considered. Especial emphasis is placed on the problem of idleness of half of the land area of the state. Transportation facilities and problems of both peninsulas are studied. The principal cities are examined as sites for commerce and industry.

Prerequisite: Course 10. Omitted in 1923-1924.]

- [26. Geography of the Settlement of America. *Three hours credit.* Professor \_\_\_\_.

The exploration of the New World and the discovery of areas of attraction for settlement. The major theme is the process of settlement of the United States by the determination of localities of superior geographic attraction.

Prerequisite: Geography 2. Omitted in 1923-1924.]

27. Geography for Teachers. *Two hours credit.* Assistant Professor McMURRY.

This course covers phases of the subject matter of interest to prospective teachers of geography and elementary science. In addition to the subject matter, the planning of field work, texts, and teaching problems will receive consideration. Students contemplating electing this course should consult the instructor before making the election.

30. Research and Special Work in Regional Geography. *Hours to be arranged.* Assistant Professor McMURRY and Mr. JAMES.

31. Research and Special Work in Economic Geography. *Hours to be arranged.* Assistant Professor McMURRY.

#### SECOND SEMESTER

2. Element of Geography. Assistant Professor McMURRY and Mr. JAMES. A continuation of Course 1, with lectures, recitations, and field trips as announced for Course 1 in the first semester.

3. Geography of Commercial Products. *Three hours credit.* Assistant Professor McMURRY and Mr. HALL.
10. Geography of North America. *Three hours credit.* Assistant Professor McMURRY.  
First course in regional geography. A systematic study of the United States, Canada, Alaska, Mexico, and the West Indies, as to their sectional contrasts, conditions of life, and distribution and character of their populations.  
Prerequisite: Course 2 or 3.
20. Routes and Centers of World Trade. *Three hours credit.* Assistant Professor McMURRY and Mr. HALL.  
The course is intended to follow and supplement Course 3. It deals with (a) the general character of sea-borne traffic, (b) the location, significance, and nature of traffic of the great ocean routes, (c) the land routes, rail, river, and lake, which contribute in a major way to world commerce, (d) seaports that serve as gateways to continents, (e) fuel stations, with reference to supplies of coal and oil, and (f) interior centers of commerce. The commercial rivalry of the leading nations is considered in the terms of position, resources, and stage of development.  
Prerequisite: Course 3.
- [21. Land Utilization. *Three hours credit.* Professor ———.  
An introduction to quantitative study in regional geography. Emphasis is placed on varied statistical analysis of land utilization in different sections of this country, especially to the question of determination or improvement of productive powers of the land. Minor attention is given to foreign areas. In conclusion, the problems of full and permanent utilization of the land, as a measure of national economy, is considered. The course is open to advanced students on consultation with the instructor. Omitted in 1923-1924.]
30. Research and Special Work in Regional Geography. *Credit to be arranged.* Assistant Professor McMURRY and Mr. JAMES.
31. Research and Special Work in Economic Geography. *Credit to be arranged.* Assistant Professor McMURRY.

## SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

15. Introduction to Geography. *Two hours credit.* Dr. JAMES.
  45. Climates of the World. *Two hours credit.* Dr. JAMES.
  30. Research and Special Work in Regional Geography. *Two hours credit.* Dr. JAMES.
- Field Course in Kentucky and Tennessee.*
5. Field Course in Geography. *Eight hours credit.* Assistant Professor McMURRY.

**GEOLOGY****(GROUP II)**

The courses in Geology are planned to meet the needs of (a) those desiring a general knowledge of geology as a part of a liberal education (Courses 1, 2, 3, and 4a or 4b; (b) students of engineering whose profession makes some knowledge of geology essential (Course 3, and, if possible, Courses 4a, or 4b, 40, 42a, and 42b); (c) teachers of earth science in secondary schools (Courses 1, 2, 3, 4a or 4b, 20, and 21, while 13, 22, 23, and 40 are recommended. See under Geography for other courses recommended); students of forestry (Courses 3 and 40, and, if possible, 4a or 4b, and 41); (e) professional geologists (see Curricula in Geology, page 189).

Inasmuch as the different departments of geological study call for widely different prerequisite course, the student intending to make a career in geology is enjoined to consult with the departmental faculty upon taking up his residence at the University. A program should be selected from those outlined under Curricula in Geology.

Courses 1 and 2 are the only courses open to freshmen. In general, Courses 3 and 4a or 4b, or their equivalent, are considered prerequisite to more advanced courses in Geology; and special permission must be obtained from the instructor for admission to advanced courses for which the prerequisites have not been fully met. Students primarily interested in the biological phases of geology may enter Course 4a or 4b on satisfying the instructor of their ability to carry the work.

**CONSULTATION HOURS.** — Throughout registration week, a representative will be in Room G 223, N. S., 10 to 12 daily, to advise students desiring to elect courses in Geology.

**JOURNAL CLUB**

Every two weeks throughout the year members of the staff of the department and all students pursuing special courses in geology meet in the evening for presentation of reports and discussion of the literature of the science. Early in the fall semester the first meeting will be announced, and the time of holding the Journal Club will be fixed by mutual arrangement. No credit is allowed for participation in this work.

**FIRST SEMESTER**

1. **Introductory Geology.** *Four hours credit.* Lectures, recitations and field work. Professor SCOTT, Mr. GOULD, Mr. HUSSEY, and assistants.

This course, followed by Course 2, is designed primarily as an introductory course in geology for first-year students. It is not open to upperclassmen. The year's work, which includes a study of the various geological agents at work on the earth and the origin and development of the resultant land forms, together with a general treatment of weather, form a unit.

3. *Physical Geology. Three hours credit.* Lectures and laboratory. Professor HOBBS.

A course in dynamical and structural geology intended to prepare the student for the equally important subject of historical geology (Courses 4a or 4b), as well as to supply the need for cultural treatment of the subject. A special object of the course is to train the students in the geological interpretation of scenery. Required of students in civil engineering, and elective for others, but not open to freshmen except by special permission. Some laboratory work will be required.

- 4a. *Historical Geology. Three hours credit.* Mr. HUSSEY and assistant.

An introductory course in historical and stratigraphical geology, which must be preceded by Geology 1 and 2, or 3, or their equivalent. This course gives an outline history of the development of the North American continent and its relation to other continents; the distribution of the various rocks upon the surface, with something of their relation to economic products and geographical features; the origin and development of plants and animals in geological time. Opportunity for a few excursions, optional with the student, will be given.

- [10. *Introduction to Invertebrate Paleontology. Three hours credit.* Assistant Professor EHLERS.

This course is designed to introduce the student to the subject of invertebrate paleontology. To insure the necessary recognition of the relationship between the living and fossil invertebrates, certain living invertebrates are selected as types and discussed with special reference to those features which aid in understanding the fossil forms.

This course may advantageously be followed by Geology 11.  
Omitted in 1923-1924.]

- 12a. *Systematic Invertebrate Paleontology. Three hours credit.* Assistant Professor EHLERS.

This course, extending through the year, describes the origin and development of the invertebrate animals. The principles of evolution and distribution as illustrated by the fossil invertebrates are carefully worked out. For those primarily interested in geology, the fossils are treated as an aid in stratigraphy.

- 13a. *Organic Evolution. Three hours credit.* Professor CASE.

A lecture course describing the origin of man and the domestic animals. Especial attention is paid in this course to the early history of mankind and the stages of culture through which he has passed in attaining civilization.

- 14a. *Systematic Vertebrate Paleontology. Three hours credit.* Professor CASE.

A course extending through the year, describing the origin and development of vertebrate animals. The principles of evolution and distribution as illustrated by the vertebrates are carefully worked out; the fossils are also treated as an aid in the study of stratigraphic geology.

- [15a. Interpretation of Geologic Maps. *Three hours credit.* This course to be followed by 15b. Professor COOK.

A course designed to give the student practice in the interpretation of geologic maps together with a detailed knowledge of the structural geology of typical regions in the United States. Given in 1924-1925 and alternate years.]

20. Physiography. *Three hours credit.* Professor SCOTT and assistant.

An advanced course in which the various land forms, their manner of formation, and the underlying principles will be discussed. The course will consist of lectures, laboratory and field work, and reports on readings of the more important physiographic monographs.

Courses 1 and 2, or 3, or the equivalent, are prerequisites.

- [25. The Origin, Structure, and Growth of Mountains. *Three hours credit.* Professor HOBBS.

A course for advanced students, and treating the conditions which give rise to mountains, the seismic phenomena connected with their growth, the mechanics of folding and the types of flexures in mountain ranges.

Given in 1925-1926 and alternate years.]

26. Characteristics of Existing Glaciers. *Three hours credit.* Professor HOBBS.

An advanced course of lectures and reading, assignments upon the existing glaciers, with special emphasis upon their morphology, the conditions of their nourishment and waste, and their reactions with the lithosphere. Special attention is given to the continental glaciers of high latitudes and their relations to the former ice-sheets which are treated in Course 23.

Given in 1924-1925.

41. Soil Geology. Laboratory work. *One to three hours credit.* Professor COOK.

This course must be preceded or accompanied by Course 40.

- 42a. Economic Geology (non-metals). *Three hours credit.* Professor COOK.

A general course treating of the nature, occurrence, and distribution of the non-metallic mineral resources, such as coal, oil and gas, salt, gypsum, building stones, phosphate, rock, etc.



43. Petroleum Geology. *Three hours credit.* Professor COOK.  
A course treating of the origin, occurrence, and exploitation of deposits of petroleum and natural gas. This course should be preceded by Courses 3 and 4a or 4b, and should be followed by Course 22 and 44.
45. Metamorphism. *Three hours credit.* Professor COOK.  
A study of geology from the physico-chemical standpoint. This course is essential to an understanding of the origin and character of ore deposits.  
Prerequisites are Geology 3 and Mineralogy 2, or their equivalents, and a course in physical chemistry is strongly recommended.
- \*50. Research and Special Work in Dynamical Geology. *Credit to be arranged.* Professor HOBBS.
- \*51. Research and Special Work in Physiography. *Credit to be arranged.* Professor SCOTT.
- \*52. Research and Special Work in Paleontology and Stratigraphy. *Credit to be arranged.* Professor CASE and Assistant Professor EHLERS.
- \*53. Research and Special Work in Economic Geology. *Credit to be arranged.* Professor COOK.

## SECOND SEMESTER

2. Introductory Geology. A continuation of Course 1, with lectures, recitations, and excursions as announced for Course 1, first semester. Professor SCOTT, Mr. GOULD, Mr. HUSSEY, and assistants.
3. Physical Geology. *Three hours credit.* Lectures, quiz, and laboratory. Professor HOBBS.  
A course in dynamical and structural geology intended to prepare the student for the equally important subjects of historical geology (4), as well as to supply the need for cultural treatment of the subject. A special object of the course is to train the student in the geological interpretation of scenery. Required of students in civil engineering, and elective for others, but not open to freshmen except by special permission.
- 4b. Historical Geology. *Three hours credit.* Professor CASE.  
An introductory course in historical and stratigraphical geology, which must be preceded by Geology 1 and 2, or 3, or their equivalent. This course gives an outline history of the development of the North American continent and its relation to other continents; the distribution of the various rocks upon

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\* The above courses may be elected for any number of hours, the credit to be indicated by a, 2 hours, b, 3 hours, etc.

the surface, with something of their relation to economic products and geographical features; the origin and development of plants and animals in geological time. Opportunity for a few excursions, optional with the student, will be given.

- [11. Introduction to Paleobotany. *Three hours credit.* Professor BARTLETT and Assistant Professors TUPPER and G. M. EHLERS.

This course, which is offered jointly by the departments of Botany and Geology, is designed to train the student in determining the relationships of fossil plants from their external and internal morphology. The laboratory exercises will deal chiefly with forms which are significant in stratigraphic geology. The course as a whole is designed to follow and supplement Geology 10. It will likewise serve as an introduction to Botany 30.

Omitted in 1923-1924.]

- 12*b*. Systematic Invertebrate Paleontology. *Three hours credit.* Assistant Professor EHLERS.

This course is a continuation of Course 12*a*, given in the first semester.

Work in invertebrate paleontology may be continued by special permission.

- 13*b*. Organic Evolution. *Three hours credit.* Mr. HUSSRY.

A lecture course describing the origin of man and the domestic animals. Especial attention is paid in this course to the early history of mankind and the stages of culture through which he has passed in attaining civilization.

- [14*b*. Systematic Vertebrate Paleontology. *Three hours credit.* Professor CASE.

This course is a continuation of Course 14*a*, given in the first semester.]

- 15*b*. Stratigraphical Geology of North America. *Three hours credit.* Professor CASE.

An account of the development of the continent as recorded in the deposits, the faunal changes, and the diastrophic movements. The subject will be treated in a broad way, all matter bearing on the history of the continent being so far as practicable introduced and the student directed to the sources of information. This course should follow 15*a*.

Given in 1922-1923 and alternate years.

21. Elementary Meteorology. *Two hours credit.* Professor SCOTT.

This course is designed to follow Course 20 and is an elementary treatment of the dynamics of the atmosphere. In it will be discussed the properties and movements of the atmosphere, weather and its variations, together with some account of weather predictions.

22. Field Geology. *Three hours credit.* Professor SCOTT.  
In this course the methods of geological field work will be discussed and practice given in the use of the more important instruments necessary for the prosecution of such work. The major portion of the work will be in the field in the vicinity of Ann Arbor.
23. Pleistocene Glaciation of North America and Europe. *Two hours credit.* Mr. LEVERETT.  
A course of twelve lectures dealing with pleistocene glacial history. Weekly field excursions to study the glacial formations accessible from Ann Arbor will be taken on *Saturdays* after Easter vacation. Open only to students who have completed Geology 1 and 2, or 3, or their equivalent.
- [27. History of Geology. *Three hours credit.* Professor HOBBS.  
An advanced course treating of the development of the science of Geology and of the lives and teachings of its founders. Given in 1924-1925 and alternate years.]
28. Evolution of the Earth's Facial Expression. *Three hours credit.* Professor HOBBS.  
An advanced course treating of the problems of evolution of continents and mountains, as well as those connected with volcanic action, and especially the origin of lava, the cause of its rise to the surface, and the mechanism of eruption. The nature of the earth's interior and the theories of origin of the earth will be gone into. It is believed that this course will prove of value to students of astronomy and petrography. Given in 1923-1924 and alternate years.
40. Soil Geology. *Three hours credit.* Professor COOK and assistant.  
A comprehensive survey of the subject, including the origin of soils, their physical and chemical constitution, the influence of climate on soil fertility, irrigation and drainage, tillage, fertilizers, etc., and a consideration of the regolith of the United States in relation to geologic, physiographic, and climatic factors.  
Geology 3 and Mineralogy 1 and 9 are prerequisites.  
The attention of students desiring additional laboratory work is directed to Course 41.
41. Soil Geology. Laboratory work. *One to three hours credit.* Professor COOK.  
This course must be preceded or accompanied by Course 40.
- 42b. Economic Geology (metals). *Three hours credit.* Professor COOK.  
In this course the metallic mineral resources are treated in the same manner as are the non-metallic resources during the first semester. Although this course may be elected independently of Geology 42a, both are essential to a general survey of the subject.

44. The Stratigraphy of Petroliferous Areas. *Three hours credit.* Assistant Professor EHLERS.  
A course describing the distribution and stratigraphic relations of the various oil horizons.  
This course should follow Course 43.
46. Ore Deposits. *Three hours credit.* Professor COOK.  
A detailed study of the character, origin, and exploitation of the iron, lead, zinc, copper, silver, and gold ores.  
This course should be preceded by Geology 3, 4, and 45. Geology 42b is also recommended.  
Given in 1923-1924 and alternate years.
- \*50. Research and Special Work in Dynamical Geology. *Credit to be arranged.* Professor HOBBS.  
Omitted in 1921-1922.
- \*51. Research and Special Work in Physiography. *Credit to be arranged.* Professor SCOTT.
- \*52. Research and Special Work in Paleontology and Stratigraphy. *Credit to be arranged.* Professor CASE and Assistant Professor EHLERS.
- \*53. Research and Special Work in Economic Geology. *Credit to be arranged.* Professor COOK.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

35. Earth Features and their Meaning. *Two hours credit.* Professor HOBBS, and assistant.
265. Earthquakes. *Two hours credit.* Professor HOBBS.
51. Research and Special Work in Dynamical and Physical Geology. *Credit to be arranged.* Professor HOBBS, and Mr. HUSSEY.
45. Historical Geology. *Two hours credit.* Mr. HUSSEY, and assistant.
135. Organic Evolution. *Two hours credit.* Mr. HUSSEY, and assistant.

*Field Courses in Kentucky and Tennessee.*

5. Field Course in Geology. *Eight hours credit.* Assistant Professor EHLERS.
6. Field Course in Physiography. *Eight hours credit.* Professor SCOTT.
62. Research and Special Work in Physiography. Professor SCOTT.
52. Research and Special Work in Paleontology and Stratigraphy. Assistant Professor EHLERS.

**GERMANIC LANGUAGES AND LITERATURE****(GROUP I)****German**

Students especially interested in language study are advised to elect two foreign languages in the freshman year. Two new languages, however, should not be begun at the same time. (See page 172).

Courses 1, 2, 3, and 4, or their equivalent, must precede all other courses in German. The work in these courses is laid out on the basis of an entire academic year, and it is expected that the student will not change instructor or section at the end of the first semester without consulting the head of the department. Students intending to begin the study of German in the University are strongly advised to do so in their first year.

The prerequisites for Courses 5-10 are specifically designated under the courses described.

All courses beyond 10 are advanced undergraduate and graduate courses, and should be elected only after consultation with the instructors.

Students who have had one year of German in the high school and wish to pursue the study in the University should elect Course 2.

Students who have had two years of German in the high school should elect Course 3 or 3e.

Students who have had three or four years in the high school may elect Courses in 5a, 5b, 5c, 5d, 5e and 9.

Students intending to prepare themselves to teach German are strongly advised to elect Courses in 5 and 6 and Courses in 9, 10, 13, 14, 17, and 18. All such students are urged to consult Professor WINKLER (Room 203, U. H.) as soon as possible for the more careful adjustment of their work in German.

Attention is called to the special reading courses in German in the departments of Botany, Course 36; Chemistry 20; Physics 37; and Zoölogy 29.

For consultation hours of the various instructors, see the bulletin boards at the door of the German rooms.

Throughout registration week, Professor WINKLER will be in Room 203, U. H., to advise students in regard to elections in German.

**FIRST SEMESTER*****Introductory Courses***

1. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. *Four hours credit.* Professors WINKLER, DIEKHOF, HILDNER, and SCHOLL, Assistant Professor WAHR, Mr. SCHROEDER, Mr. BIGGE, and Mr. VAN DUREN.

2. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. *Four hours credit.* Mr. SCROEDER.
3. Modern Prose, narrative and dramatic, with practice in speaking and writing German. Reviews in German grammar. *Four hours credit.* Professors WINKLER, DIEKHOFF, and HILDNER, Assistant Professor WAHR, Mr. SCHROEDER, and Mr. VAN DUREN.
- 3e. Scientific German. *Four hours credit.* Professor SCHOLL.  
This course is designed especially for students who intend to enter the Medical School.  
Prerequisite: Two years of German in high school or one year of German (Courses 1 and 2) in the University.
4. Modern Prose, narrative and dramatic, with practice in speaking and writing German. Reviews in German grammar. *Four hours credit.* Professor SCHOLL.

*Third-year Electives*

German Classics:

- 5a. Lessing's *Nathan der Weise*, with collateral readings. *Three hours credit.* Professor DIEKHOFF.
- 5b. Goethe's *Iphigenie*, and His Lyrics and Ballads. *Two hours credit.* Assistant Professor WAHR.
- 5c. Schiller's *Maria Stuart* and His Lyrics and Ballads. *Two hours credit.* Professor HILDNER.
- 5d. Heinrich von Kleist's *Prinz von Homburg* and *Der Zerbrochene Krug*. *Two hours credit.* Professor SCHOLL.
- 5e. Heinrich Heine. Readings from his *Reisebilder* and from his later representative prose writings. Discussion of his life and times. *Two hours credit.* Professor WINKLER.
9. German Composition and Conversation. *Two hours credit.* Professor HILDNER.

*Advanced Courses*

11. Teachers' Course. Practical work, and discussions on grammar, composition, and the reading material now used in the high schools. Intended primarily for seniors. *Two hours credit.* Professor HILDNER.
13. German Grammar. General introduction to the study of language, with special emphasis upon German phonology, word formation, and inflection. Text-book, Diekhoff's *The German Language*. Advanced course intended for undergraduates and graduates, particularly for prospective teachers of German. Professor DIEKHOFF.

15. Goethe's *Faust*: Part I. Lectures and recitations. Thomas' edition. Advanced course open to undergraduates and graduates. *Two hours credit*. Professor WINKLER.
17. History of German Literature. From the earliest times to the end of the Middle Ages. Lectures, selected readings, and reports. Thomas' Anthology of German Literature. Advanced course open to undergraduates and graduates. *Two hours credit*. Professor WINKLER.
- [19. The Beginnings of the Romantic Movement in Germany in its philosophical thought of the times. Advanced course open to undergraduates and graduates. *Two hours credit*. Professor WINKLER.  
Omitted in 1923-1924.]
- 19a. History of German Literature of the Nineteenth Century. Advanced course open to undergraduates and graduates.
  - I. Hebbel, Ludwig, Keller, Nietzsche, and their Contemporaries. *Two hours credit*. Professor HILDNER.
  - II. Gerhart Hauptmann and His Contemporaries. *Two hours credit*. Assistant Professor WAHR.
  - III. The Development of the German *Novelle*. Heinrich von Kleist, Paul Heyse, Theodor Storm, Conrad Ferdinand Meyer, Gottfried Keller, and others. *Two hours credit*. Professor SCHOLL.
27. Introduction to Middle High German. Lectures and recitations. Paul *Mittelhochdeutsche Grammatik*. Advanced course open to undergraduates and graduates. *Two hours credit*. Professor DIEKHOFF.
- [29. Old High German. Lectures and recitations based upon Braune's *Abriss der Althochdeutschen Grammatik* and reading of selections from Braune's *Althochdeutsches Lesebuch*. *Two hours credit*. Primarily for graduates. Professor DIEKHOFF.  
Omitted in 1923-1924.]
39. Seminary in the German Classics. A comprehensive study of the lives and works of Goethe, Schiller, Lessing, or Herder, with investigations of selected topics. Advanced course open to undergraduates and graduates. *Two hours credit*. Professor WINKLER.
- [43. The Storm and Stress Movement. A comprehensive study of the movement, with investigations of selected topics. Advanced course open to undergraduates and graduates. *Credit to be arranged*. Professor HILDNER.  
Omitted in 1923-1924.]

SECOND SEMESTER

1. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. *Four hours credit.* Professor SCHOLL.
2. Elementary Course. Continuation of Course 1. Grammar, descriptive prose, short stories, with practice in speaking and writing German. *Four hours credit.* Professors WINKLER, DIEKHOFF, HILDNER, and SCHOLL, Assistant Professor WAHR, Mr. SCHROEDER, Mr. BIGGE, and Mr. VAN DUREN.
3. Modern Prose, narrative and dramatic, with practice in speaking and writing German. Reviews in German grammar. *Four hours credit.* Mr. SCHROEDER and Mr. VAN DUREN.
4. Selected Dramas of Lessing, Goethe, or Schiller. Reviews in German grammar and practice in reading and writing German. Continuation of Course 3. *Four hours credit.* Professors WINKLER, DIEKHOFF, and HILDNER, Assistant Professor WAHR, and Mr. SCHROEDER.
- 4e. Scientific German. Continuation of Course 3e. *Four hours credit.* Professor SCHOLL.

*Third-year Electives*

German Classics:

- 6a. Schiller's *Wallenstein*. *Three hours credit.* Professor DIEKHOFF.
- 6b. Goethe's *Tasso*, and his Lyrics and Ballads. *Two hours credit.* Assistant Professor WAHR.
- 6c. Schiller's *Braut von Messina*, and his Lyrics and Ballads. *Two hours credit.* Professor HILDNER.
- 6d. Grillparzer's *Sappho* and *Medea*. *Two hours credit.* Professor SCHOLL.
- 6e. Heinrich Heine. Readings from his representative prose writings. Discussion of his life and times. *Two hours credit.* Professor WINKLER.
10. German Composition and Conversation. Continuation of Course 9. *Two hours credit.* Professor HILDNER.

*Advanced Courses*

12. Teachers' Course. Continuation of Course 11. Practical work, and discussions on grammar, composition, and reading material now used in the high schools. Intended primarily for seniors. *Two hours credit.* Professor HILDNER.
14. German Syntax. Continuation of Course 13. *Two hours credit.* Professor DIEKHOFF.
16. Goethe's *Faust*: Part II. Continuation of Course 15, Thomas' edition. *Two hours credit.* Professor WINKLER.



18. History of German Literature. From Luther to Lessing. Continuation of Course 17. Lectures, selected readings, and reports. Professor WINKLER.
- [20. History of the Younger Romantic Movement and *Das junge Deutschland*. Continuation of Course 19. Advanced course open to undergraduates and graduates. *Two hours credit*. Professor WINKLER.  
Omitted in 1923-1924.]
- 20a. History of German Literature of the Nineteenth Century. Continuation of Course 19a. Advanced course open to undergraduates and graduates.
  - I. Hebbel, Ludwig, Keller, Nietzsche, and their Contemporaries. *Two hours credit*. Professor HILDNER.
  - II. Gerhart Hauptmann and His Contemporaries. *Two hours credit*. Assistant Professor WAHR.
  - III. The Development of the German *Novelle*. Heinrich von Kleist, Paul Heyse, Theodor Storm, Conrad Ferdinand Meyer, Gottfried Keller, and others. *Two hours credit*. Professor SCHOLL.
28. Middle High German. Selected readings from the most important works of this period. Continuation of Course 27. *Two hours credit*. Professor DIEKHOPF.
- [30. Old High German. Readings from Otfrid's *Evangelienbuch*, and lectures on Old High German Literature. Primarily for graduates. Continuation of Course 28. *Two hours credit*. Professor DIEKHOPF.  
Omitted in 1923-1924.]
40. Seminary in German Classics. A comprehensive study of the lives and works of Goethe, Schiller, Lessing, or Herder, with investigations of selected topics. Continuation of Course 39. *Two hours credit*. Professor WINKLER.
- [44. Proseminary in the Storm and Stress Movement. Continuation of Course 43. *Two hours credit*. Professor HILDNER.  
Omitted in 1923-1924.]
- [46. The Faust Legend and Kindred Themes in European Literature. *Two hours credit*. Primarily for graduates. Professor WINKLER.  
Omitted in 1923-1924.]

#### JOURNAL CLUB

Current Literature on German Philology and Literature. Meetings of instructors and advanced students in the German department are held every three weeks throughout the academic year, at which reports are made on important articles on German Philology and Literature.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- 1as. Beginners' Course. *Four hours credit.* Professor SCHOLL, and Mr. SCHOEDER.
  - 2a. Reading of Easy German Stories with Practice in Speaking and Writing German. *Two hours credit.* Assistant Professor WAHR.
  - 3a. Modern Prose. *Two hours credit.* Professor HILDNER.
  - 3e. Scientific German. *Two hours credit.* Professor SCHOLL.
  4. Selected Dramas of Lessing, Goethe, or Schiller. *Two hours credit.* Mr. SCHROEDER.
  5. Goethe's *Iphigenie* and *Tasso*, or Lessing's *Nathan der Weise*. *Two hours credit.* Assistant Professor WAHR.
  9. German Composition. *Two hours credit.* Professor SCHOLL.
  - 5e. German Prose. *Two hours credit.* Professor SCHOLL.
  9. German Composition. *Two hours credit.* Mr. SCHROEDER.
  - 9a. German Conversation. *Two hours credit.* Professor HILDNER.
- For Graduates and Undergraduates.*
13. Advanced German Grammar. *Two hours credit.* Professor DIEKHOF.
  - 18a. Studies in Contemporary German Literature. *Advanced course.* Assistant Professor WAHR.
  27. Introduction to Middle High German. *Two hours credit.* Professor DIEKHOF.
  39. I. Proseminary in the German Classics. *Advanced course.* Professor DIEKHOF.
  29. II. Goethe. *Advanced course.* Professor HILDNER.

Gothic

FIRST SEMESTER

1. Lectures on Phonology and Morphology and reading of the Gospels, Wright's *Primer of the Gothic Language*. Primarily for graduates. *Two hours credit.* Professor DIEKHOF.

SECOND SEMESTER

2. Epistles. Heyne's *Ulfilas*. *Two hours credit.* Professor DIEKHOF.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

1. Lectures on Phonology and Morphology and Reading of the Gospels. *Two hours credit.* Professor DIEKHOF.

Old Norse

- [Old Icelandic. Introductory course. Lectures and reading of selections from the sagas. Kahle's *Altisländisches Elementarbuch*. Primarily for graduates.  
Omitted in 1923-1924.]

Scandinavian

FIRST SEMESTER

- [1. Modern Norwegian. Introductory Course. Grammar and easy readings. *Two hours credit.*  
Omitted in 1923-1924.]
- [3. Henrik Ibsen. A comprehensive study of his works and his influence upon the contemporary drama. Selected readings from his dramas in English translations. Lectures, discussions, and reports. *Two hours credit.*  
Omitted in 1923-1924.]

SECOND SEMESTER

- [2. Modern Norwegian. Continuation of Course 1. Grammar and easy readings. *Two hours credit.*  
Omitted in 1923-1924.]
- [4. Henrik Ibsen and His Contemporaries. Continuation of Course 3. The chief contemporaries of Ibsen, such as Björnson and Strindberg, will here be considered. Lectures, discussions, and reports. *Two hours credit.*  
Omitted in 1923-1924.]

GREEK LANGUAGE AND LITERATURE

(GROUP I)

Students especially interested in language study are advised to elect two foreign languages in the freshman year. Two new languages, however, should not be begun at the same time. A suggested program in classical language study is outlined on page 171.

Students intending to enter upon the study of Greek at any time in this course will find it to their advantage to do so in their first year.

The courses marked A and B are designed for those who have had no opportunity to take Greek before admission, or have not been able to complete the entrance requirements in Greek. Course C is intended for students who have had only one year's work in Greek before entering the University. A credit of four hours will be given for each one of these courses satisfactorily completed.

Courses 1 and 2 must precede all the other numbered courses except those grouped below under the headings, "Greek Courses in English" and "Hellenistic Greek."

In addition to Courses 1, 2, 3, and 5, students who are preparing to teach Greek are recommended to elect at least twelve hours more under the advice of the instructors in the department.

During the period from September 19 to 25 the instructors in the department will be found in Room 108, T. H., from 10 to 12, and prospective students are urged to consult them. Thereafter, through the whole of the university year, consultation hours for the individual professors and instructors will be found posted on the small bulletin board at Room 108, T. H.

### Greek

#### FIRST SEMESTER

- A. Elementary Greek. *Four hours credit.* Assistant Professor DUNLAP and Dr. TITCHENER.  
No credit toward graduation is counted for this course until Course B is satisfactorily completed.  
This course, with its continuation, Course B in the second semester, will enable students to take up Course 1 the following year.
- C. Xenophon's *Anabasis*, or other selections from easy Attic prose. Homer, *Iliad* or *Odyssey*, one book. Review of Grammar. *Four hours credit.* Dr. TITCHENER.  
This course is intended for students who have had only one year of Greek before entering the University.
1. Homer, *Odyssey*, selections. *Four hours credit.* Professor BONNER.
3. Selections from the lyric and elegiac poets, and from the history of Herodotus. *Three hours credit.* Professor WINTER.  
*Time and place of meeting subject to change.*
- [7g. Seminary in the Poetry of the Alexandrian Age. Study of Theocritus and Herodas, with special reference to the origin and development of bucolic poetry and the mime. Selected readings from other forms of literature of this period. *Two hours credit.* Professor BONNER.  
Omitted in 1923-1924.]
- 7e. Seminary in Greek Religion. Studies in literary texts and inscriptions illustrating the history and development of Greek Religion. Professor BONNER.  
*These hours may be changed to suit the convenience of the class.*
- 12b. Thucydides. The Sicilian Expedition. *Three hours credit.* Dr. TITCHENER.
- 17a. Euripides. Selected Plays, with studies in the life and times of the poet. *Three hours credit.* Professor BONNER.

[17b. Aeschylus. *The Persians, The Seven Against Thebes, and Prometheus*. *Three hours credit*. Professor BONNER.  
Omitted in 1923-1924.]

31. Reviews in Greek Literature, Grammar, and Antiquities. For candidates for the higher degrees. *One hour credit*. Professors BONNER and WINTER.

#### SECOND SEMESTER

B. Elementary Greek. Continuation of Course A. Xenophon's *Anabasis* and Greek prose writing. *Four hours credit*. Assistant Professor DUNLAP and Dr. TITCHENER.

2. Plato, *Apology*; Euripides, *Medea*. *Four hours credit*. Professor BONNER.

5. Greek Drama. Sophocles, *Antigone*; Aristophanes, *Birds* or *Frogs*. *Three hours credit*. Professor WINTER.

6b. Greek Prose Composition. *Two hours credit*. Dr. TITCHENER.

[8g. Seminary in the Poetry of the Alexandrian Age. Continuation of Course 7g. Professor BONNER.  
Omitted in 1923-1924.]

8e. Seminary in Greek Religion. Continuation of Course 7e. *Two hours credit*. Professor BONNER.

12c. Plutarch, Selected Lives. *Two hours credit*. Dr. TITCHENER.

21. Pindar. The Olympian and Pythian Odes, and Selections from Bacchylides. *Three hours credit*. Professor BONNER.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

As. Elementary Greek. *Two or four hours credit*. Dr. TITCHENER.

25. Rapid Reading of Greek Prose. *Two hours credit*. Dr. TITCHENER.

#### For Graduates

175. Seminary in Aristophanes. *Two hours credit*. Professor BONNER.

#### Greek Courses in English

The courses grouped under this head do not require a knowledge of the Greek language. They are intended for students who have not had time or opportunity to learn Greek, but wish to acquire some knowledge of Greek literature and life, and of the debt which modern civilization owes to the Greeks.

#### FIRST SEMESTER

14. Greek Mythology. Professor BONNER.  
Elect as Classical Archaeology 6.

16. Greek Literature in English. Lectures, assigned readings, and reports. *Three hours credit.* Professor WINTER.  
No knowledge of the Greek language is required for this course.  
The aim is to give students an acquaintance with the masterpieces of Greek literature from Homer to Theocritus through the medium of English translations.
- [29. Ancient Greek Life. Elect as Classical Archæology 4.  
Omitted in 1923-1924.]
35. Introduction to Classical Archæology. Professor WINTER.  
Elect as Classical Archæology 1.

SECOND SEMESTER

10. The Greek Drama in English Translations. Lectures on the history, development, and influence of Greek drama; assigned readings and reports. *Three hours credit.* Professor BONNER.  
No knowledge of the Greek language is required for this course.
30. Topography and Monuments of Ancient Athens. Illustrated lectures and assigned readings. Professor WINTER.  
Elect as Classical Archæology 8.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- 6s. Mythology. See Classical Archæology. Professor BONNER.
- 16s. Greek Literature in English. *Two hours credit.* Professor WINTER.

Hellenistic Greek

Students who wish to enter these courses are expected to have had Courses A and B in Classical Greek. See the description above.

FIRST SEMESTER

1. Elementary Course. The Gospels according to Mark, Matthew, and Luke, with grammatical study of Hellenistic Greek. Students should provide themselves with one of the standard texts, such as Westcott and Hort, Nestlé, or Souter (Oxford text). *Three hours credit.* Dr. TITCHENER.
3. The Pauline Epistles. *I and II Corinthians, Romans.* Reading and interpretation. *Two hours credit.* Dr. TITCHENER.

SECOND SEMESTER

2. The Acts of the Apostles and the Fourth Gospel. *Three hours credit.* Dr. TITCHENER.  
This course may be taken, if desired, as two separate parts, viz.:  
2a. The Acts of the Apostles. *Two hours credit.*  
2b. The Fourth Gospel. *One hour credit.*
4. The Pauline Epistles. *Galatians, I and II Thessalonians, Ephesians.* *Two hours credit.* Dr. TITCHENER.

In place of one or two of the Epistles, the class may interpret selections from the works of the Apostolic Fathers, if such reading be preferred.

### History of Religions

#### FIRST SEMESTER

- [19. Elementary Phenomena of Religion. *Two hours credit.* Professor BONNER.]

A study of primitive forms of religion, such as fetichism, animism, ancestor-worship, magic, etc. The subject will be illustrated not only from the religion of the Greeks and other ancient peoples, but also from the religious practices of modern peoples living under primitive conditions of civilization. Lectures, assigned readings, and reports.

Omitted in 1923-1924.]

For other courses in the history of Religions, see under Semitics.

#### JOURNAL CLUB

Analysis and criticism of important articles in the domain of Greek and Latin languages and literatures, Greek and Latin grammar and lexicology, Greek and Roman history, archaeology, and antiquities, by members of the classical faculty, and of the Greek and Latin seminaries. Fortnightly, throughout the year.

### Hebrew

(See Semitics)

### HISTORY

#### (GROUP III)

Students entering upon historical work are, as a rule, required to take first either Courses 1 and 2, dealing with the history of Europe since the seventeenth century, or Courses 1a and 2a, dealing with the history of England, or Courses 1b and 2b, dealing with the history of Greece and Rome. The order advised is 1 before 2, or 1a before 2a, or 1b before 2b; but those who find it necessary to begin their work in history the second semester may take 2 before 1, or 2a before 1a, or 2b before 1b. No credit, however, will be granted towards graduation until both Courses 1 and 2, or 1a and 2a, or 1b and 2b, have been successfully completed. Students who intend to take advanced work in history should elect these introductory courses (either 1 and 2, or 1a and 2a, or 1b and 2b) as early as possible after entering college, preferably in the first year. However, two of these introductory courses may not be taken for credit.

Juniors and seniors may elect these introductory courses only by special permission, and for three hours credit instead of four.

As soon as the introductory work is completed, students may elect courses in one or more of the following fields: American history (14, 15, 17, 37); ancient history (7, 8); English history (3, 4,

5, 6); history of the Middle Ages and age of the Renaissance and Reformation (9, 10); modern European history (11, 12, 71, 72); Latin-American history (51, 55, 56, 57, 58). These courses lead on to more advanced work in each field, and students are advised to consult with those in charge of such work concerning choice of courses.

**REGISTRATION OF STUDENTS PREPARING TO TEACH HISTORY IN THE SCHOOLS.**—Students who expect to teach history and kindred subjects in the schools, and who desire recommendation from members of the department of history, should register with the department as early as possible in their course, preferably by the beginning of their junior year. They may thus have special guidance in planning their work for the end in view.

Such students will be regarded as in one or another of three groups—C, B, A—according to the degree of preparation sought.

In Group C will be those who specialize in some other subject and pursue history only as a minor. These students, to receive any statement from members of the department of history, must do, aside from introductory work in college, at least six hours in each of two main fields outside of that in which the introductory work was done. (By "main fields" is meant such divisions as Ancient, Medieval, Modern, English, American.)

In Group B will be those who specialize in history, but cannot go further (at least temporarily) than the bachelor's degree. For such students the minimum requirement, aside from the introductory work, will be at least six hours in each of three main fields outside of that in which the introductory work was done, and at least one of Courses 21 and 22. (Courses 21 and 22 are of pro-seminary character.)

In Group A will be those who would go far enough with their studies to prepare for positions in the better high schools and the junior colleges—who would plan, then, to go at least as far as the master's degree. For such students the minimum requirement in history will be, aside from the introductory work: (1) in courses other than pro-seminary or seminary, at least thirty hours, distributed so as to include not less than six hours (or two courses) in each of at least four main fields outside of that in which the introductory work was done; (2) in pro-seminary and seminary, at least four hours of seminary. Normally, an undergraduate classifying with Group A should complete by the close of the senior year at least as much work as the minimum required for Group B. In case a student does not classify till entering the Graduate School, the distribution of courses suggested for Group A may sometimes seem unattainable, or otherwise inappropriate. The members of the department, however, in advice as to elections, will keep as closely to the ideal set for the group as circumstances may permit.

In addition to the requirements in history, students will be expected to do some work in certain other subjects—especially political science, economics or sociology, and foreign language and liter-



ature; and according to circumstances, geography, psychology, and philosophy.

The advice given to registering students, in regard alike to work in history and to work in other fields, will be determined largely by individual needs. The registration will be in charge of Professor Dow.

CONSULTATION HOURS. — Throughout registration week, Professors TURNER and FRAYER, daily, 10 to 12. Rooms 202, 207, T. H.

During the year the instructors in the department will have consultation hours as follows:

Professor VAN TYNE, the first week of each semester, daily at 11; the rest of the semester, *F*, at 11. Clements Library.

Professor DOW, the first week of the year, daily at 10 and 3; the rest of the year, *M*, *W*, at 10, or by *appointment*. Room 201, T. H.

Professor CROSS, the first two weeks of each semester, daily at 12; the rest of the semester, *M*, *W*, *F*, at 12. Room 207, T. H.

Professor PHILLIPS, the first week of each semester, daily at 3; the rest of each semester, *W*, at 3. Clements Library.

Professor TURNER, the first week of the year, daily at 11; the rest of the year, to be announced. Room 204, T. H.

Professor FRAYER, the first week of the year, daily at 4; the rest of the year, *M*, *W*, at 11, *Tu*, at 4:30. Room 204, T. H.

Professor BOAK, the first week of the year, daily at 10. Room 204, T. H. The rest of the year, *M*, *W*, at 10. Room 205, T. H.

Assistant Professor SLOSSON, *Tu*, *Th*, at 4. Room 204, T. H.

Dr. STEPHENSON, Dr. GALPIN, Dr. BRAND, the first week of year, daily at 1. Room 204, T. H. The rest of the year, to be announced.

Dr. AITON, the first week of the year, daily at 11. Room 204, T. H. The rest of the year, to be announced.

Mr. RUSSELL, the first of the year, daily at 4; the rest of the year, *M*, *Tu*, at 4. Clements Library.

#### FIRST SEMESTER

##### *Primarily for Undergraduates*

1. The General History of Europe, from the seventeenth century to 1815. *Four hours credit*. Lectures and recitations. Professor FRAYER, Assistant Professor SLOSSON, Dr. DUNHAM, Mr. SCOTT, and reading assistants.

This course and Course 2 deal with Europe since the Thirty Years' War. The rise of Prussia and of Russia, the decline of Spain, the ascendancy of France, the great Revolution and the Napoleonic empire are the chief subjects for study during the first semester; the growth of nationalities and changing industrial, social, and political conditions, and the recent history of Europe in the nineteenth century.

Courses 1 and 2 are not open to those who have taken or are taking Courses 1a and 2a, or 1b and 2b. Juniors or seniors may elect this course only by special permission, as Course

101, and will receive but *three hours credit*.

- 1a. The General History of England to the Accession of James I. *Four hours credit*. Lectures and recitations. Professor TURNER, Dr. STEPHENSON, Dr. GALPIN, Dr. BRAND, and an assistant.

This course and Course 2a are designed to give some idea of the character and culture of the people of England, and of the development of institutions which were afterward brought to America. Narrative and military history will not be neglected, but emphasis will be put upon social and economic matters and the development of the constitution and of English law.

Courses 1a and 2a are not open to students who have taken or are taking Courses 1 and 2, or 1b and 2b. Juniors or seniors may elect this course only by special permission, as Course

101a, and will receive but *three hours credit*.

- 1b. The History of Greece and the Near East to 201 B. C. *Four hours credit*. Lectures and recitations. Professor BOAK.

This course begins with a brief survey of the rise of civilization in Egypt, Mesopotamia, and the other countries of the Near East; discusses the pre-Hellenic civilization of the Aegean basin and traces the history of the Greeks to the beginning of the Roman conquest of the Hellenic world.

This is an introductory course, designed (like Courses 1 and 1a) primarily for freshmen. Courses 1b and 2b are not open to students who have taken or are taking Courses 1 and 2, or 1a and 2a. Juniors and seniors may elect this course only by special permission, as Course

101b, and will receive but *three hours credit*.

- [5. The History of England from the Beginnings of the American Revolution to the Reform Bill of 1832. *Three hours credit*. Discussions on lectures and assigned reading. Professor CROSS. Omitted in 1923-1924.]

6. The History of England from the Reform Bill of 1832 to the Close of the Great War. *Three hours credit*. Discussions on lectures and assigned readings. Professor CROSS.

9. Europe in the Middle Ages, from Rome to Feudalism. Lectures, reading, and discussions. *Three hours credit*. Professor DOW. This course treats of our western world during one of the chief stages of its evolution—when Rome gave way before invaders from Germany and Arabia, and the peoples of modern Europe took on their broader lines; when thought and life came to

be moulded increasingly by the Christian church, and the papacy advanced to a large rôle in both church and secular affairs; and when feudalism in some form became the most widely controlling factor in political and social arrangements. The course is designed primarily for the sophomore or the junior year.

- 11a. The Revolutionary and Napoleonic Period in Europe (1789-1815). Lectures, assigned reading, special reports, and discussions. *Three hours credit.* Professor FRAYER.

This course will deal somewhat generally with the political, social, and economic conditions in France under the Old Régime, and much more intensively with the period of the French Revolution and Napoleon. The permanent influences of this period, and especially the relation of the French Revolution to modern world conditions, will be considered. A reading knowledge of French is recommended. Open to juniors and seniors, and by special permission to sophomores.

14. The Political and Constitutional History of the United States. Lectures and quizzes. *Three hours credit.* Professor VAN TYNE and Mr. RUSSELL.

This course, supplemented by Course 15 in the second semester, covers the history of the United States from the outbreak of the Revolution to the Civil War. Special attention is given in this semester to the divergent English and American political theories, the methods of organizing the Revolutionary War, the European diplomatic entanglements, the relations of the Continental Congress and the states, the efforts to solve the problem of imperial organization, the Constitutional Convention, and the Federalist organization of the new government.

This course should be taken in the sophomore year by those who propose to make a special study of American History.

16. The History of the United States in the Civil War and Reconstruction. *Three hours credit.* Lectures, reading, and quizzes. Professor PHILLIPS and Mr. RUSSELL.

This course treats of the causes and processes of secession; the problems and conduct of the war, and the theories and readjustments in industry, society, and government which followed the collapse of the Southern Confederacy.

*For Upperclassmen and Graduates*

3. The Constitutional and Legal History of England, to Magna Charta. *Three hours credit.* Lectures, discussion on lectures, and assigned reading. Professor CROSS.

The aim of this course is to explain the formation of the English constitution and to trace the origin and development of English institutions, political and legal. It should be of par-

ticular interest to those who intend to study law. It is open to juniors and seniors who have had an introductory course, and by special permission to those who have not.

- 7a. The Constitutional Development of the Greek States to the End of the Fifth Century. Lectures, reports, and discussions. *Three hours credit.* Professor BOAK.

This course traces the development of political institutions and systems of government in the Greek states from their origins until the fall of the Athenian Empire, with special consideration of the Athenian democracy. It is open only to students who have had Course 1b or 101b, or equivalent introductory work.

- [7b. Greek Political Theories of the Fourth Century and the States of the Hellenistic Age. Lectures, reports, and discussions. *Three hours credit.* Professor BOAK.

This course treats of the theories of state and Plato and Aristotle, of the rise of federal states, of absolute monarchy, of bureaucracy, and of the other political developments of the Hellenistic Age.

Omitted in 1923-1924.]

- [19b. Social Europe in Medieval Times. Lectures, reading, and discussions. *Two or three hours credit.* Lectures, with an optional third hour for discussion. Professor DOW.

This course treats briefly of social reconstruction from Roman to feudal times, and then more especially of noble, cleric, peasant, artisan, and trader in the midst of feudalism. It should be elected preferably for three hours, and only by students who have done successfully other college work in history.

Omitted in 1923-1924.]

- 19c. Social Europe in the Age of Renaissance. Lectures, reading, and discussions. *Two or three hours credit.* Lectures, with an optional third hour discussion. Professor DOW.

The course treats briefly of social grouping and life in the midst of feudalism, and then of conditions and changes along the roads toward more centralized states, a new economy, and intellectual revival. It should be elected preferably for three years, and only by students who have done successfully other college work in history.

21. Studies in Medieval and Early Modern Times, conducted as a pro-seminary. *Two or three hours credit.* Professor DOW.

This course gives opportunity for special study of some subject relating to the Middle Ages, Renaissance, or Reformation; each member of the class selecting a subject according to his preference and equipment. But the main object of the course

is to provide guidance for the beginner in more advanced or independent study. The matters emphasized concern chiefly preparation of a bibliography and critical use of documents and works. Open only to seniors or graduates specializing in history or some kindred field.

36. The Westward Movement in the United States. Lectures, reading, and quizzes. *Three hours credit.* Professor PHILLIPS.

A study of the conditions and processes of migration into the several areas of the United States, and of the resulting economic, social, and political developments. The work of the first semester will extend to about the year 1840.

- [38. The History of the South, Colonial and Ante-Bellum. Lectures, reading, and quizzes. *Three hours credit.* Professor PHILLIPS.

An economic, social, and political study. The plantation system, with its dependence upon staple crops, unfree labor, free trade, and local autonomy, is taken as a key to the development and policy of the South. The first semester's work deals chiefly with the development of the régime within the South.

Omitted in 1923-1924.]

51. The History of Hispanic America. Lectures and quizzes. *Three hours credit.* Dr. AITON.

This course will deal with the European background of Spanish and Portuguese America, the conquest, the native civilizations, and the institutions and life of the colonial period. A reading knowledge of Spanish will be of considerable value.

55. The Colonization of North America. Lectures and quizzes. *Three hours credit.* Dr. AITON.

This course deals not only with Great Britain's colonies in America, but with the history of Spanish, French, and other colonizing efforts in North America. Stress will be laid in the first semester upon the development of Spanish colonial institutions. European origins will be treated, political and economic development, colonial society and culture, the frontier and imperial rivalries.

57. The History of Spain. Lectures and reports. *Two hours credit.* Dr. AITON.

This course deals with the development of the institutions of the Iberian peoples, both before their transplanting in America and parallel with their growth in the colonies. Among the subjects treated are: the Roman and Saracen influences, the rise of Castile and Aragón, the establishment of a strong monarchy by the Catholic Kings and the early Hapsburgs, the *Decadencia*, the Bourbon revival, Portugal under the House of Aviz, the Church, the cities and the *cortes*, and the relation of art and literature to the national life. The course is especially designed for prospective teachers of Spanish and for those who intend to take Courses 51 and 52.

71. The History of Eastern Europe. Lectures, reports, and discussions. *Three hours credit.* Assistant Professor SLOSSON.  
The aim of this course is to trace the origin and development of the nationalities of eastern Europe prior to the Great War.

*Primarily for Graduates*

59. Seminary in American Revolutionary History. *Two hours credit.* Professor VAN TYNE.

This course is intended to offer training in the investigation of historical problems, and practice in the handling of original material. The work in 1923-1924 is concerned with a series of historical problems in the preliminaries of the American Revolution, chosen for the purpose of illustrating various methods of research. Open only to graduates and to seniors obtaining special permission.

23. Seminary in English History. *Two hours credit.* Professor CROSS.

This course is devoted to the investigation of topics mainly in the sixteenth and seventeenth centuries. The work of 1923-1924 will be concerned with the Stuart Period. Open only to graduates, and to seniors with the permission of the instructor.

25. Seminary in Medieval and Early Modern European History. *Two hours credit, or more by special permission.* Professor DOW.

This course and Course 26 (second semester) are designed for graduates who may be interested especially in medieval or early modern European history, or other advanced students who may wish simply the experience in historical method. In Course 25 emphasis will be given to preparation by each member of the class of a critical bibliography on some selected topic, and to practice in interpretation of typical medieval sources. In Course 26 some group documents or important writing of the middle ages will be studied coöperatively, and individual work may be continued on the topics begun in the first semester.

41. Seminary in American History. *Two hours credit.* Professor PHILLIPS.

Intensive research by students upon assigned topics, and discussion of reports presented. Open only to graduates and to seniors obtaining permission of the instructor. The topics will relate mainly to race problems and sectional politics between 1830 and 1865.

47. Seminary in Modern European History. *Two hours credit.* Professor TURNER.

62. Seminary in Ancient History. *Two hours credit.* Professor BOAK.

A study of the sources bearing upon selected topics in Greek and Roman history. An adequate knowledge of Greek and Latin is a prerequisite for this course.

## SECOND SEMESTER

*Primarily for Undergraduates*

2. The General History of Europe since 1815. *Four hours credit.* Professor FRAYER, Assistant Professor SLOSSON, Dr. DUNHAM, Dr. SCOTT, and reading assistants.

This course forms a continuation of Course 1. The class will be organized in the same way as in the first semester, with lectures, quiz sections, hours, and rooms as announced under Course 1. Juniors or seniors may elect this course only by special permission, as Course

102, and will receive but *three hours credit.*

- 2a. The General History of England, from the Accession of James I to 1923. *Four hours credit.* Professor TURNER, Dr. BRAND, Dr. STEPHENSON, Dr. GALPIN, and an assistant.

This course forms a continuation of Course 1a. The class will be organized in the same way as in the first semester, with lectures, quiz sections, hours, and rooms as announced under Course 1. Juniors or seniors may elect this course only by special permission, as Course

102a, and will receive but *three hours credit.*

- 2b. The History of Rome, to the Fall of the Roman Empire in Western Europe. *Four hours credit.* Professor BOAK.

This course forms a continuation of Course 1b. The class will be organized in the same way as in the first semester, with lectures as announced under Course 1a. Juniors or seniors may elect this course only by special permission, as Course

102b, and will receive but *three hours credit.*

10. Europe from Feudal to National Times. Lectures, reading, and discussions. *Three hours credit.* Professor DOW.

This course treats of institutions, problems, and efforts in the western world when the feudal régime and the church were at their height, and then of the principal developments toward political consolidation in France, Spain, Germany, Italy, and the Near East. It is designed primarily for the sophomore or junior year, and, when possible, should be preceded by Course 9 or equivalent general preparation in the earlier Middle Ages.

12. Europe Since 1870. Lectures, assigned reading, special reports, and discussions. *Three hours credit.* Professor FRAYER.

The course will deal with the recent political, social, and economic history of Europe, the Near Eastern and Colonial prob-

lems, the intense national rivalries, the Great War, and the New Europe. Not open to students who have had Course 2 or its equivalent.

15. The Political and Constitutional History of the United States. Lectures and quizzes. *Three hours credit.* Professor VAN TYNE and Mr. RUSSELL.

Course 15 is a continuation of Course 14, and deals with the reform movements of the Jeffersonian democracy, the development of national feeling, the westward movement and the rise of the political power of the West, the Jacksonian type of democracy, slavery and abolition, party entanglement in the slavery issue, and the final clash of the northern and southern social systems upon the frontier border beyond the Mississippi.

17. The United States in Recent Decades. Lectures, readings, and quizzes. *Three hours credit.* Professor PHILLIPS and Mr. RUSSELL.

In sequence to Course 16, this course treats of the political, economic, and social history of the United States from about the year 1876 to near the present time.

32. The Origin and Development of the British Empire. Lectures, reading, and discussions. *Three hours credit.* Professor CROSS.

This course will include a study of such present problems as the Egyptian and Indian questions and Imperial Federation.

*For Upperclassmen and Graduates*

4. The Constitutional and Legal History of England since Magna Charta. Lectures, reading, and discussions. *Three hours credit.* Professor CROSS.

This course is a continuation of Course 3.

- 8a. The Roman Republic. Lectures, reports, and discussions. *Three hours credit.* Professor BOAK.

This course is a study of the constitutional development of the Roman state from its beginning until the end of the period of the Republic. It is open only to those who have had Course 2b or 102b, or equivalent introductory work.

- [8b. The Roman Empire. Lectures, reports, and discussions. *Three hours credit.* Professor BOAK.

This course is a study of the Roman government system from the foundation of the Principate by Augustus to the time of Justinian.

Omitted in 1923-1924.]

- [20a. The Renaissance. Lectures, reading, and discussion. *Two or three hours.* Professor DOW.



This course treats of society, thought, and life, in and beyond Italy, during the period of change from medieval to modern times.

Omitted in 1923-1924.]

- 20b. The Reformation. Lectures, reading, and discussions. *Two or three hours credit.* Professor Dow.

This course treats of the history of Europe from the fourteenth to the sixteenth century, with special reference to problems and measures concerning the church and religion. It should be elected preferably for three hours, and only by students who have done successfully other college work in history.

22. Studies in Modern Historiography. *Two or three hours credit.* Professor Dow.

This course includes a general survey of the writing of history in modern times, and a study (with report) by each member of the class of the life and work of some outstanding historical writer. Open only to seniors or graduates specializing in history or some kindred field.

37. The Westward Movement in the United States. *Three hours credit.* Professor PHILLIPS.

This course is a continuation of Course 36. The work of the second semester extends from about the year 1840 to near the present time.

- [39. The History of the South, Colonial and Ante-Bellum. Lectures, reading, and quizzes. *Three hours credit.* Professor PHILLIPS.

This is a continuation of Course 38. The second semester's work relates chiefly to the contentions for state rights, the political phases of negro slavery, and the movement for Southern independence.

Omitted in 1923-1924.]

52. The History of Hispanic America. Lectures and quizzes. *Three hours credit.* Dr. AITON.

Course 52 is a continuation of Course 51, and deals with the republican period of Hispanic America. Stress will be laid upon present-day conditions, political, social, and economic; and upon the relations of the republics with the United States.

56. The Colonization of North America. Lectures and quizzes. *Three hours credit.* Dr. AITON.

Course 56 is a continuation of Course 55. Stress will be laid upon the development of English colonial institutions.

58. The History of Spain. Lectures and reports. *Two hours credit.* Dr. AITON.

This course is a continuation of History 57.

72. Problems of Eastern Europe. Lectures, reports, and discussions. *Three hours credit.* Assistant Professor SLOSSON.  
This course is a continuation of History 71. It deals with the present problems of the European nations to the east of Germany.

*Primarily for Graduates*

60. Seminary in American Revolutionary History. *Two hours credit.* Professor VAN TYNE.  
Course 60 is a continuation of Course 59. Open only to graduates and to seniors obtaining permission.
24. Seminary in English History. *Two hours credit.* Professor CROSS.  
This course is a continuation of Course 23. It is open only to graduate students and to seniors obtaining permission.
26. Seminary in Medieval and Early Modern European History. *Two hours credit, or more by permission.* Professor DOW.  
This is a continuation of Course 25.
42. Seminary in American History. *Two hours credit.* Professor PHILLIPS.  
Course 42 is a continuation of Course 41.
48. Seminary in Modern European History. *Two hours credit.* Professor TURNER.  
Course 48 is a continuation of Course 47.
63. Seminary in Ancient History. *Two hours credit.* Professor BOAK.  
This course is a continuation of Course 62.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- 2a. The General History of England from the Accession of James I to 1924. *Four hours credit.* Professor TURNER.
- 11s. The French Revolution and the Period of Napoleon. *Two hours credit.* Professor FRAYER.
- 12s. Europe since the Franco-Prussian War. *Two hours credit.* Professor FRAYER.
85. Mediaeval Civilization. *Two hours credit.* Professor DUNCALF.
- 50a. The Teaching of History. *Two hours credit.* Professor DUNCALF.
- 1bs. History of Greece to the death of Alexander the Great. *Two hours credit.* Professor OLDFATHER.
- 8s. Roman History from Republic to Principate. *Two hours credit.* Professor OLDFATHER.
- 13s. American Colonial History. *Two hours credit.* Dr. AITON.

515. The History of Hispanic America. *Two hours credit.* Dr. AITON.  
 875. Seminary in Hispanic American History. *Two hours credit.* Dr. AITON.

## INDO-EUROPEAN LANGUAGES AND LITERATURE

(GROUP I)

### Old Bulgarian

#### FIRST SEMESTER

1. Beginners' Course. *Two hours credit.* Professor MEADER.  
 This course is designed for students interested in Slavonics or in Indo-European comparative philology.

### Russian

In consequence of the increasing importance of Russia in intellectual, political and commercial activities, a practical acquaintance with the Russian language is rapidly becoming a necessity for English-speaking peoples. The courses offered below are especially designed for students interested in Russian literature, historical sources, and commercial affairs, and Indo-European comparative philology, and for those who are preparing to enter the diplomatic service.

#### FIRST SEMESTER

1. Beginners' Course. Elements of the Language. Selected readings from Tolstoi and other writers will serve as the basis of the work. *Three hours credit.* Professor MEADER.
3. Advanced Russian. Reading, composition, and conversation. *Three hours credit.* Professor MEADER.
7. Russian Literature in English. Lectures and assigned readings. *Two hours credit.* Professor MEADER.

No knowledge of the Russian language is required. Courses 7 and 8 are continuous in character and should be elected consecutively, as each is essential to the understanding of the other. They are designed for those who desire to pursue the study of the literature under the guidance of an instructor, without devoting time previous to the acquisition of the language. The courses deal mainly with the Age of Catharine, with Pushkin, Gogol, Dostoevski, Turgenev, Tolstoi, Nekrasov, Chekhov, Gorki, Andreev, Kuprin, and Artsybashev.

#### SECOND SEMESTER

2. Continuation of Course 1. Readings from Pushkin, Lermontov, Turgenev, and Tolstoi. *Three hours credit.* Professor MEADER.
4. Continuation of Course 3. *Three hours credit.* Professor MEADER.

8. Continuation of Course 7. *Two hours credit.* Professor MEADER.
10. Interrelations of Russian and Western European Literature. *Two hours credit.* Professor MEADER.  
Course 10 must be preceded by Courses 7 and 8, or an equivalent. It provides an opportunity for more detailed study of some of the problems treated in Courses 8 and 9.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

15. Elementary Russian. *Two hours credit.* Professor MEADER.
75. Russian Literature in English. *Two hours credit.* Professor MEADER.

Sanskrit

The study of Sanskrit is of value to students of the Indo-European (1) languages, (2) literatures, (3) philosophy and religion, (4) social institutions, and (5) for those preparing to do missionary work in India. The courses offered below are designed especially for students of the languages, ancient and modern, and are adjusted to the needs of those preparing to teach. They are correlated with the courses in Comparative Philology, but individual aid and direction will be given to any who wish to devote themselves to other aspects of the study.

Before beginning the study of Sanskrit, the student should have pursued courses in one of the three subjects, Greek, Latin, and German, or in lieu of German some one of the other Teutonic languages or a Slavonic language, for at least four semesters.

FIRST SEMESTER

1. Beginners' Course. Grammar, and exercises in translation and composition. Text-books: Whitney's *Grammar*, or Thumb's *Handbuch des Sanskrit*, and Lanman's *Sanskrit Reader*. *Two hours credit.* Professor MEADER.
- [3. Advanced Reading: Kalidasa's *Cakuntala*. Elements of Prakrit. *One hour credit.* Professor MEADER.  
Omitted in 1923-1924.]
- [3a. Rapid Reading of Easy Sanskrit. *One or two hours credit.* Professor MEADER.  
Omitted in 1923-1924.]

SECOND SEMESTER

2. Interpretation of selections contained in Lanman's *Sanskrit Reader*, with elementary studies in the comparative morphology of the more important cognate languages. *Two hours credit.* Professor MEADER.
- [4. Advanced Reading. Selections from the *Vedas*. *One hour credit.* Professor MEADER.  
Omitted in 1923-1924.]

**Italian**

(See Romance Languages and Literatures)

**Journalism**

(See Rhetoric)

**LANDSCAPE DESIGN**

Courses 1, 2, and 5 may be elected by any student above the rank of freshman, without previous preparation. Courses 3 and 4 may also be elected by students not specializing in outlined programs in Landscape Design.

Courses 6 to 16 are designing courses; each period implies *three hours work*; and when outside work is necessary, such as stadia surveying, ground measurement, and inspection, the entire morning or entire afternoon will be required, at the discretion of the instructor.

Those interested in landscape design are referred to the special announcement of the Curriculum in Landscape Design, which may be obtained by application to the Secretary's office.

Students wishing to consult about these courses may do so by appointment with Professor TEALDI and Assistant Professor WHITTEMORE during registration week, and later at the hours posted in the South Wing, South Corridor. Telephone University Exchange 152-M or City Exchange 2430, between 1 and 2 o'clock.

**FIRST SEMESTER**

1. Introduction to the Study of Landscape Design. Lectures, collateral reading, and reports. *Two hours credit.* Professor TEALDI and Assistant Professor WHITTEMORE, with occasional lectures by Mr. SIMONDS.

Course 1 is designed to give a general knowledge of the variety of problems to be met with in the practice of landscape gardening. It is not intended as a technical course, such as a course in construction or design. The general problems are treated separately and special stress is laid upon the subject of good taste and common sense in all problems, from the simple arrangement of the city yard to the laying out of a country estate. The lectures are illustrated by the use of the stereopticon.

Students following the professional curriculum in Landscape Design must elect this course as

- 1a. Professional Introductory Course. *Three hours credit.* It may be so elected by others.

Course 1a includes a more technical presentation of the subject, time being devoted to the study of plans, elementary design, field trips, reports, etc.

3. Study of Materials for Planting Design: Trees and Shrubs. Lectures, reports, and field work. *Three hours credit.* Mr. PIESTER, with occasional lectures by Professor TEALDI.  
 Course 3 is intended to make the student familiar with the shrubs and trees generally used in landscape gardening. It is not intended as a course in botany; courses in botany are prerequisites of this course. The æsthetic value of plants are to be studied; their shape, size, habits, favorite habitat, their autumn coloring both of leaves and fruit, their general aspects in autumn and winter. Two or three field trips a week are taken, and reports of the trips are required. During the second part of the semester the field trip may be omitted, and the period devoted to laboratory work, when the entire afternoon may be required. The lectures are illustrated by the use of the stereopticon.
- [5. Art of Garden Design and Landscape Gardening in England. Lectures, with collateral reading and reports. *Three hours credit.* Professor TEALDI.  
 The object of this course is to follow the gradual development of gardening in England from the earliest efforts to present day, laying special stress upon the transition of styles and the development of the Naturalistic or English type. The lectures are illustrated by the use of stereopticon.  
 Given in alternate years. Omitted in 1923-1924.]
7. Design of Home Grounds. Study of local examples of private grounds. Solution of original problems. Drafting, conferences, and collateral reading. *Four hours credit.* Assistant Professor WHITTEMORE and Mr. PIESTER.  
 The work in Course 7 consists of the application to actual problems of the knowledge acquired in Courses 3, 4, and 6. The students are required to work out problems presented to them in definite form by the instructors, with the same attention to details which is necessary in actual office practice. The drafting consists of plans, profiles, colored sketches, and finished drawings.
9. City Planning I: Parks and Park Systems. *Four hours credit.* Professor TEALDI and Assistant Professor WHITTEMORE.
11. City Planning III: Design of Cemeteries and other special problems. *Four hours credit.* Professor TEALDI and Assistant Professor WHITTEMORE.
13. Planting Design I. *Three hours credit.* Professor TEALDI.  
 In Courses 13 and 14 the general knowledge of plants acquired in Courses 3 and 4 will be applied to the actual use of plants in Landscape Composition. Lectures, quizzes, drafting problems, and field work. In the problems the details of planting

composition will be presented in plan, elevation, and perspective.

Prerequisites: Landscape Design 1, 3, and 4.

15. Garden Design I. *Two hours credit.* Professor TEALDI.

Prerequisites: Landscape Design 1, 3, 4, 7, 8, 13, and 14.

SECOND SEMESTER

2. City Planning and Civic Improvement. *Two hours credit.* Professor TEALDI and Assistant Professor WHITEMORE.

There is a growing tendency throughout the state to take up in earnest the different phases of civic improvement. As this subject grows to be recognized in the State of Michigan as it has been in other states, as a matter of vital importance not only to municipalities but to every individual, whether in the country or in the city, there will arise a demand for men and women to lead the way of civic progress in their communities. These leaders will be recruited from teachers and other citizens who have devoted time to a study of this most complex question. Course 2 is offered with the express purpose of stimulating civic spirit and a desire for further investigation among those who would like to keep abreast of the movement for civic improvement and who are interested in its sane development. Among the subjects treated are the following: city plans, streets, bridges, squares, public buildings, parks, trees, and other natural assets, city nuisances, problems of wires and advertisements as they affect the appearance of the city; dirt, smoke, and noise as they affect life in the city. Special stress is laid upon the housing problem, particularly as it is affected by the Garden City movement.

This course may be considered a practical introduction to City Planning.

Student following the professional curriculum in Landscape Design must elect this course as

2a. City Planning. *Three hours credit.*

It may be so elected by others.

Course 2a includes a more technical presentation of the subject, time being devoted to the study of plans and elementary design, field trips, reports, etc.

4. Study of Material for Planting Design: Trees, Shrubs, and Perennials. Lectures, planting plans, reports, and field work. Mr. PIESTER.

Course 4 is a continuation of Course 3. The trees and shrubs are studied chiefly in relation to their flowering and leafing characteristics and their ornamental values in spring and summer. Hardy herbaceous perennials are studied also along the same lines. The lectures are illustrated by the use of the stereopticon.

6. Practice in Design. Study of local examples, sketch plans, reports. Solution of simple original problems based on topographical surveys. Field work, drafting, and conferences. *Three hours credit.* Assistant Professor WHITEMORE.

Course 6 is open only to those students who have passed satisfactorily in Courses 3 and 4 or who can satisfy the instructor that they have done equivalent work.

8. Design of Country Places. *Four hours credit.* Professor TEALDI and Assistant Professor WHITEMORE.

Whereas Course 7 deals with home grounds proper, whether in the city or in the country, and therefore with moderate sized and small areas which offer the restricted problems common in cities and shrubs, Course 8 deals with larger problems in which the broad lay-out is the main feature. Actual surveys are used in this and the following courses as the basis of all problems.

10. City Planning II. Continuation of Course 9. *Four hours credit.*  
12. City Planning IV: The City Plan. *Six hours credit.*  
14. Planting Design II. Continuation of Course 13. *Three hours credit.* Professor TEALDI.  
16. Garden Design II. *Two hours credit.* Professor TEALDI.  
Prerequisites: Courses 1, 3, 4, 5, 6, 7, 8, 13, and 14.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

15. Introduction to the Study of Landscape Design. *Two hours credit.* Professor TEALDI.  
25. Civic Improvement and City Planning. *Two hours credit.* Professor TEALDI.  
45. Study of Material for Planting Design. *Four hours credit.* Assistant Professor PIESTER.

### LATIN LANGUAGE AND LITERATURE

Students especially interested in language study are advised to elect two foreign languages in the freshman year. Two new languages, however, should not be begun at the same time. Suggestions with reference to the grouping of language courses are given on page 171.

Courses A and B are designed for students entering with two units in Latin, and should be elected in the first year. A credit of four hours is given for each course.

Students entering with your units in Latin should elect Courses 1 and 2 in the first year, and 3 and 4 in the second year. Course 6a is also open to second-year students.



Third-year students may elect from Courses 7, 7a, 7b, 7c, 7e, 10a or 10b, 11, 12, 14, 14a, and 16a.

In order to increase the range of work offered to advanced students, several of the courses in Latin are given in alternate years, new courses being introduced as opportunity is afforded.

Students who are preparing to teach Latin are recommended to take Courses 7, 10a or 10b, 11, 12, 21, 21a, 22, and 22a. It is advised that they complete at least Courses 1 and 2 in Greek, either having presented two units of Greek for admission and having taken Courses 1 and 2 as regular freshman work, or, if Greek be not presented for admission, having completed Courses A and B as well as 1 and 2 in the University.

All students expecting a recommendation to teach should consult the head of the department early in their course. Special courses will be arranged to suit individual needs.

Courses 1, 1a, 2, 3, 4, 4a, and 6a are intended primarily for undergraduates. Courses 5f, 6g, 7, 7a, 7b, 7c, 7e, 8, 10a, 10b, 11, 12, 3, 13a, 14, 14a, 15, 16, 16a, 18, 21, 21a, 22, and 22a are for graduates and undergraduates. Courses 18b, 24, 25, 26, 27, 28, and 31 are exclusively for graduates.

CONSULTATION HOURS. — The instructors in the department will have consultation hours as follows:

During registration week, Professor CRITTENDEN, daily from 10 to 12. Room 105, M. H.

Throughout the year:

Professor KELSEY, *M, Tu, Th*, at 9. Room 6, Library.

Professor SANDERS, *M*, at 10, *W, F*, at 11. Room 107, M. H.

Professor MEADER, *M, W, F*, at 9. Room 105, M. H.

Professor WINTER, *M, W, F*, at 3. Room 107, T. H.

Professor CRITTENDEN, *Tu*, at 3, *Th*, at 4. Room 105, M. H.

#### FIRST SEMESTER

Y. Elementary Preparatory Latin. This course and Course Z, running throughout the year, cover the first two units of the entrance requirements in Latin. Successful completion of the courses entitles the students to two units for admission; but no college credit is given. A fee of \$10 is charged for each semester. Dr. BUTLER.

B1. Virgil, *Æneid*. Translation and interpretation, metrical reading and studies in Greek and Roman mythology. *Four hours credit*. Professor CRITTENDEN.

This course is designed for students who have had two or three years of high school Latin.

B2. Selections from the Roman Law. Reading and interpretation of passages from Gaius and Justinian. *Four hours credit*. Professor CRITTENDEN.

This course is open to students who have had two years of high school Latin. It is especially designed for prospective students of law and legal institutions.

1. The History of the Roman People as represented by Latin authors. Selections from Livy and other historical writers. *Four hours credit.* Professor CRITTENDEN and Assistant Professor DUNLAP.
3. Horace. Selections from the *Odes, Satires, and Epistles*. Interesting and intimate details of Roman social life, art, and poetry, artistically expressed by an appreciative contemporary. *Four hours credit.* Professor SANDERS and Assistant Professor DUNLAP.

These sections may also be elected as *three-hour* courses, 3a.

- [5f. General Linguistics. A general introduction to the science of language. *Two hours credit.* Professor MEADER.

This course should be elected as General Linguistics and Comparative Philology 5f. Omitted in 1923-1924.]

- 6a. Roman Comedy. Selected plays of Plautus and Terence. *Two hours credit.* Professor WINTER.
7. Roman Political Institutions. *Two hours credit.* Professor SANDERS.
11. Latin Writing. *Two hours credit.* Professor MEADER.  
Course 11 is introductory to Course 12. The principal aim is to secure correctness of expression and a feeling for idiom. This course is intended for juniors, but sophomores are admitted by special permission.

- [13. Juvenal. Interpretations and lectures. *Two hours credit.* Professor KELSEY.  
Omitted in 1923-1924.]

- [13a. The Philosophical Writings of Cicero. Interpretations and lectures. *Two hours credit.* Professor KELSEY.  
Omitted in 1923-1924.]

- [14. Tibullus and Propertius. Interpretations, with lectures on the Roman elegy. *Two hours credit.* Professor SANDERS.  
Omitted in 1923-1924.]

- 14a. Catullus and Martia. Interpretations and lectures. *Two hours credit.* Professor SANDERS.  
This course may be changed to suit the wishes of the class.

15. Introduction to Latin Palaeography. *Two hours credit.* Professor SANDERS.

Lectures on the various styles of writing found in Latin manuscripts, with exercises in reading from facsimiles,

21. Teachers' Course. Interpretations of Cæsar's *Gallic War*, with studies in the syntax and military antiquities. *Two hours credit*. Professor KELSEY and Assistant Professor DUNLAP. Courses 21, 21a, and 21b are open only to those who receive special permission. Those who elect Course 21 are required to elect also 21a.
- 21a. Teachers' Course. Lectures on the *Gallic War*. *One hour credit*. Professor KELSEY and Assistant Professor DUNLAP.
- 21b. Studies in Cæsar. Consultation. Professor KELSEY. No credit is given for this course.
25. Reports on the Progress of Research. *No credit*. Analysis and criticism of important articles in the domain of the Latin and Greek languages and literature, Latin and Greek grammar and lexicology, Greek and Roman history, archæology, and antiquities, by members of the classical faculty and members of the Latin and Greek Seminaries.
27. Seminary. The Satires and Epistles of Horace. Professor KELSEY. Course 27 is open to graduate students only.

#### SECOND SEMESTER

- Z. Elementary Preparatory Latin. Dr. BUTLER. Courses Y and Z, running throughout the year, cover the first two units of the entrance requirement in Latin. Successful completion of the courses entitles the student to two units for admission; but no college credit is given. A fee of \$10 is charged for each semester.
- A. Selections from Cicero and Sallust. With comparison of ancient and modern oratory, and collateral work in Roman history and government. *Four hours credit*. Professor CRITTENDEN.
- B3. Selections from the Roman Law. Reading and interpretation of passages from Gaius and Justinian. *Four hours credit*. Professor CRITTENDEN. This course forms a continuation of B2.
2. Roman Dramatic and Lyric Poetry. Plays of Plautus and Terence; selections from Ovid and Catullus. *Four hours credit*. Professor CRITTENDEN and Assistant Professor DUNLAP.
- 4a. Tacitus, *Agricola* and *Germania*. Life in western and central Europe in Roman times. *Two hours credit*. Professor SANDERS.
- 4b. The *Letters* of Pliny the Younger. The personal side of life in Italy under the early Empire. *Two hours credit*. Assistant Professor DUNLAP.

- 16a. The *Letters of Cicero*. *Two hours credit*. Professor SANDERS.  
Interpretation of selected letters, with a study of Roman manners and political conditions at the end of the Republic.  
Students should elect either Courses 4a and 4b or one of these with 6a, 9, or 16a in order to make the sophomore work formerly elected as Course 4.
- 6g. Comparative Philology. A general introduction to comparative Indo-European philology. *Two hours credit*. Professor MEADER.  
This course should be elected as General Linguistics and Comparative Philology 6g.
- 7b. Proseminary in Roman Political Institutions. Studies in the Imperial Period. *One hour credit*. Professor SANDERS.  
Graduate students will take this as a *two-hour course*, 7d.
- [7c. Tacitus, *Histories*. Interpretations and lectures. *Two hours credit*. Professor WINTER.  
Omitted in 1923-1924.]
- 7e. The *Annals of Tacitus*. Interpretations and lectures. *Two hours credit*. Professor WINTER.
8. Roman Law. See courses in Roman Law and Jurisprudence.
9. The History of Roman Literature. *Two hours credit*. Assistant Professor DUNLAP.  
Designed for all students interested in the general subject of literature, this course endeavors to estimate the achievements of Roman writers in this field. No knowledge of the Latin language is required. The Roman literature will be treated in its broad relation to Greek literature and to modern Literature.
- 10a. The Topography and Monuments of Ancient Rome. Illustrated lectures. *Three hours credit*. Professor WINTER.  
Elect as Classical Archæology 2a.
- [10b. Roman Life as Illustrated by Works of Art and Objects of Common Use. *Three hours credit*. Professor WINTER.  
Elect as Classical Archæology 2b.  
Omitted in 1923-1924.]
12. Latin Writing. Advanced Course. *Two hours credit*. Professor MEADER.  
In Course 12 attention is given not only to correctness of expression but also to matters of style and the finer distinctions of the language. It is limited to those whose work in Course 11 has been of a high grade.
16. Latin Inscriptions. *Credit to be arranged*. Professor KELSEY.  
Reading of inscriptions of different periods from the De Criscio collection and from reproductions. Interpretation of selected inscriptions.

18. Lectures on the Latin Language. *Two hours credit.* Professor MEADER.

The object of this course is to give the student a scientific basis for the study and teaching of and Latin language. The subjects treated will be: the history of the Latin sounds and inflections; the forms and meanings of the more important syntactical types; Latin word formation.

22. Teachers' Course. Virgil. *Two hours credit.* Professor KELSEY and Assistant Professor DUNLAP.

Students are required to combine 22a and 22.

- 22a. Teachers' Course. Lectures on Virgil. Professor KELSEY and Assistant Professor DUNLAP.

- 22b. Studies in Virgil. Consultation. Professor KELSEY.

No credit is given for this course.

24. Reviews in Roman Literature. *One hour credit.* Professors KELSEY, SANDERS, and MEADER.

Students who are candidates for advanced degrees in this department will be given systematic reviews during the second semester.

26. Reports on the Progress of Research. Continuation of Course 25. *One hour credit.*

28. Seminary. The Satires and Epistles of Horace. Continuation of Course 27. *Two hours credit.* Professor KELSEY.

Course 28 is open to graduate students only.

- [31. Lectures on the Sources of Roman Historians. *Two hours credit.* Professor SANDERS.

The chief historians, their methods of work, their interrelationships, and final indebtedness to tradition, historical records, or their own memories, will be discussed. Incidentally, the historical foundation of much in Roman history will be touched upon. This course is intended primarily for advanced students in Latin and teachers of ancient history.

Omitted in 1923-1924.]

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- Zs. Cæsar's Gallic War. *For entrance.* Dr. BASSETT.

- 4s. Virgil. *Two hours credit.* Dr. BASSETT.

7. Roman Political Institutions. *Two hours credit.* Professor SANDERS.

- 7s. Latin Writing. *Two hours credit.* Dr. BASSETT.

- 6as. Roman Comedy. *Two hours credit.* Dr. TITCHENER.

*For Graduates and Undergraduates.*

- 8s. Readings from Roman Historians. Imperial Period. *Two hours credit.* Dr. BASSETT.
- 10s. The Topography and Monuments of Ancient Rome. *Two hours credit.* Professor WINTER.
- 13as. Lucretius. *Two hours credit.* Professor CRITTENDEN.
- 20s. Methods of Teaching High School Latin. *Two hours credit.* Professor CRITTENDEN.
- 17s. The Latin Vulgate of the New Testament. *Two hours credit.* Professor SANDERS.

*For Graduates Only.*

- 27s. Propertius. *Two hours credit.* Professor SANDERS.
- 15s. Laboratory Course in Roman Antiquities. *Two hours credit.* Professor WINTER and Dr. BUTLER.

**LECTURES TO FIRST YEAR WOMEN**

A series of six meetings on campus organization and the relation of the student to the University will be given by Miss Jean Hamilton, Dean of Women. Attendance is required of all women students in their first year of residence, whether entering as freshmen or on advanced standing. No credit toward graduation will be given for the course.

**MATHEMATICS**

(GROUP II)

Courses 1, 2, 3, and 4 (or equivalent courses), taken in order, furnish the preparation preliminary to further extended study in any field of mathematical interest.

Students intending to elect first-year mathematics should choose with regard to their college preparation. The following table will suggest the courses in college which would be taken in order after various degrees of preparation:

Subjects and number of units presented for entrance	First Year		Second Year	
	1st Semester	2nd Semester	1st Semester	2nd Semester
Algebra, 1 unit (only) Geometry, 1 unit	Course C	Course 1E	Course 2I	Calculus
Algebra, 1½ units (only) Geometry, 1, or 1½ units	Course 1	Course 2	Calculus	Calculus
Algebra, 1½ units Geometry, 1, or 1½ units Trigonometry, ½ unit	Course 1E	Course 2E	Calculus	Calculus

Students who present for entrance two units of algebra (including college algebra), geometry, and one-half unit of trigonometry should elect Course 2.

Other students should consult a representative of the department of mathematics in regard to elections.

Students who plan to specialize in mathematics, or to teach the subject, or to study engineering, in case they have not studied solid (Euclidean) geometry, should elect, at some time, Course A, which is given the second semester.

Students specializing in mathematics should take the five-hour course in calculus during each semester of their second year or supplement the three-hour course by Courses 21 and 22. They should seek advice from some members of the department in regard to further work.

Students preparing to teach mathematics in high school should plan to elect a minimum of 27 hours in the subject, including a year's study (ten hours) in the calculus and Courses 19 and 20. These courses should be selected after conference with the chairman of the department, which conference should be had not later than the second semester of the second year.

Students intending to specialize in Actuarial or Statistical Mathematics are advised to consult the instructor in charge early in their course, and to examine carefully the program of studies under the course in Insurance and Statistics in the special bulletin of courses in Business Administration. Professor GLOVER will be in Room 405, Mason Hall, from 10 to 12, September 18 to 24, inclusive, to consult with students who desire to take up this work. The courses in mathematics for students in actuarial or statistical lines of study should be taken in the following order: 1, 2, 3 (or 3E), and 51, 4 (or 4E), and 52, 13, 49 and 53, 14, 50 and 54, 55, 56, 59, 60, 67, and 68.

A representative of the department of mathematics will be in Room 108, M. H., from 10 to 12, during the registration period, to advise students with reference to matters connected with mathematical work.

#### FIRST SEMESTER

C. School Algebra and Trigonometry. *Four hours credit.* Mr. PETERSON, Mr. FIELD, Mr. JOHNSON, Mr. CRAIG, and Mr. REID.

1. Algebra and Trigonometry. *Four hours credit.* Professors MARKLEY, FORD, KARPINSKI, and BRADSHAW, Assistant Professors COE and ANNING, Mr. JOHNSON, Mr. PETERSON, Mr. FIELD, Mr. CRAIG, and Mr. REID.

1E. Algebra and Analytic Geometry. *Four hours credit.* Assistant Professor ANNING, Mr. JOHNSON, Mr. CRAIG, and Mr. REID.

2. Plane Analytic Geometry. *Four hours credit.* Assistant Professor COE, Mr. PETERSON, and Mr. FIELD.

2E. Analytic Geometry. *Four hours credit.* Assistant Professor ANNING.

3. Calculus, I. *Three hours credit.* Professors MARKLEY, BRADSHAW, and Assistant Professor ANNING.

3E. Calculus, I. *Five hours credit.* Professor FORD.

4b. Calculus, II. *Four hours credit.* Assistant Professor COE.

5. Solid Analytic Geometry. *Two hour credit.* Assistant Professor ANNING.

7. Descriptive Geometry. *Three hours credit.* Professor BRADSHAW.

A broad survey will be given of the various methods of representing three-dimensional objects by plane figures, with primary emphasis on the geometrical theory.

9. Differential Equations. *Three hours credit.* Assistant Professor COE.

11. Theory of Functions of a Complex Variable, I. *Three hours credit.* Professor MARKLEY.

See note under Course 15.

The fundamental ideas of complex numbers, their geometric interpretation and their calculus, with introduction to theories of functions as developed by Cauchy, Riemann, and Weierstrass.

13. Higher Algebra, I. *Three hours credit.* Professor KARPINSKI.

This course is intended to supplement the work usually done in a short course in college algebra. It consists of a consideration of those algebraic topics and processes commonly used in all branches of mathematics, both pure and applied. It should be taken by those whose interests require constant use of mathematics, either in scientific work or in teaching.

Course 3 should precede or accompany this course.

[15. Theory of Functions of a Real Variable, I. *Three hours credit.* Professor MARKLEY.

NOTE.—It is intended to give Courses (11, 12) and (15, 16) in alternate years. If, however, the necessity and demand appear, a year's work in Courses 11 and 15 will be given.

The purpose of Courses 15 and 16 is to investigate and obtain a precise formulation of the necessary and sufficient conditions for the validity of the processes of analysis, particularly the "limiting" processes. They are concerned with such notions as the nature of numbers, point-sets, functional relations, classification of functions with reference to continuity, differentiability, integrability, etc., with illustrative applications.

Omitted in 1923-1924.]



17. Theory of the Potential. *Three hours credit.* Professor HILDEBRANDT.
19. Teachers' Seminary. Algebra. *Two hours credit.* Professor KARPINSKI.  
Courses 19 and 20 are open to those who have completed Courses 1, 2 (or 1E, 2E), 3E, and 4E, or their equivalents.
21. Differential and Integral Calculus. *Two hours credit.* Professor MARKLEY.  
Courses 21 and 22 are intended as supplementary to Courses 3 and 4.
23. Projective Geometry, II. *Three hours credit.* Professor BRADSHAW.  
Analytic projective geometry, including homogeneous coördinates in two and three dimensions, conics, and quadric surfaces, an introduction to the theory of invariants, and line geometry.
25. Differential Geometry, I. *Two hours credit.* Assistant Professor NELSON.
- [27. Theory of Numbers, I. *Two hours credit.* Professor KARPINSKI.  
Omitted in 1923-1924.]
29. Advanced Calculus, with special reference to Fourier Series and Harmonic Analysis. *Three hours credit.* Professor FORD.  
Adapted to those who have completed Courses 3E and 4E, or who have completed Courses 3 and 4 and have had, or are taking, Course 9, or equivalents. General topics such as the following are first considered: definite integrals, with especial reference to *improper* integrals; directional derivatives; line, surface, and space integrals; Green's theorem; the derivation of Laplace's equation and other partial differential equations of mathematical physics from elementary considerations. Applications are then made to problems in heat conduction, determination of potential, and acoustics. Osgood's *Differential and Integral Calculus* and Byerly's *Fourier Series and Spherical Harmonics* are used as texts. See also Course 30.
33. Advanced Mechanics, I. *Two hours credit.* Professor ZIWET.
41. Infinite Series and Products, I. *Two hours credit.* Professor FORD.
47. History of Mathematics (I). Lectures, discussions, and required readings. *Two hours credit.* Professor KARPINSKI.  
This course is especially planned to give prospective teachers of secondary mathematics a survey of the historical development of the elementary branches — arithmetic, algebra, geometry, trigonometry, and the beginnings of analytic geometry and the calculus—from early times to the present. Some attention

will also be paid to an historical treatment of the methods of teaching the science. A reading knowledge of French or German is highly desirable.

49. Mathematical Theory of Statistics. Introductory Course. *Three hours credit.* Professor CARVER, Mr. RAIFORD, and Mr. JENKINS.

This course deals with the elementary theory and applications of mathematical statistics, and will include a study of averages, dispersions, coefficients of correlation and elementary curve fitting.

50. Mathematical Theory of Statistics. *Two hours credit.* Professor CARVER, Mr. RAIFORD, and Mr. JENKINS.

This course is a continuation of Mathematics 49, by which it must be preceded.

51. Introduction to the Mathematical Theory of Interest. *Three hours credit.* Professors GLOVER and CARVER, Mr. RAIFORD, and Mr. JENKINS.

The following subjects are considered: compound interest and discount, the construction and use of interest tables, annuities certain, sinking funds, determination of interest, depreciation, renewal and other fixed charges in an industrial undertaking, valuation and amortization of securities, loans repayable by equal installments including principal and interest.

52. Introduction to the Mathematical Theory of Interest and Insurance. *Three hours credit.* Mr. JENKINS.

A continuation of Course 51. The theory of interest is developed further and applied to financial calculations and life insurance. The theory of probability is presented briefly as an introduction to the mathematics of life insurance. The treatment of insurance includes the development of formulae for commutation columns, premiums, reserves, and practice in their computation.

Course 52 should be preceded or accompanied by Course 51.

53. Theory of Probability. *Three hours credit.* Professor GLOVER.

This course deals with fundamental concepts and seeks to establish the connection between *a priori* and empirical probabilities. Much time is also given to the application of theorems in selection, arrangement, distribution, and derangement to the solution of problems in choice and chance.

55. Advanced Mathematical Theory of Interest and Life Contingencies, I. *Three hours credit.* Professor GLOVER.

59. Mathematical Theory of Statistics. Advanced Course. *Two hours credit.* Professor CARVER.

This course includes a development of the series of Bernoulli, Poisson, and Lexis and a discussion of their properties, to-

gether with a study of the normal curve of error and its applications to the theory of least squares and the graduation of frequency series.

[67. *Casualty Actuarial Theory. Two hours credit. Professor CARVER.*

A study of the theory and calculation of premiums and reserves for health, accident, workmen's compensation, and other branches of casualty insurance.

Omitted in 1923-1924.]

Additional courses in Mathematics will be found in the Announcement of the Graduate School.

#### SECOND SEMESTER

See notes at the beginning of announcement of courses in mathematics in regard to first-year elections.

A. *Solid Geometry. Two hours credit. Assistant Professor ANNING.*

C. *School Algebra and Trigonometry. Four hours credit.*

1. *Algebra and Trigonometry. Four hours credit.*

1E. *Algebra and Analytic Geometry. Four hours credit.*

This follows Course C of the first semester.

1a. *Trigonometry. Two hours credit. Assistant Professor ANNING.*

Designed especially for pre-medical students.

Open to others only by special permission. Not intended for freshmen.

2. *Continuation of Course 1. Four hours credit. Professors MARK LEY, FORD, KARPINSKI, and BRADSHAW, Assistant Professors COE and ANNING, Mr. JOHNSON, Mr. PETERSON, Mr. FIELD, Mr. CRAIG, and Mr. REID.*

2E. *Continuation of Course 1E. Four hours credit. Assistant Professor ANNING, Mr. JOHNSON, Mr. CRAIG, and Mr. REID.*

All elections of this course, whether by first-year students or upper classmen, must be made through the classification committee for freshmen.

3. *Calculus, I. Three hours credit. Assistant Professor COE.*

4. *Calculus, II. Three hours credit. Professors MARKLEY and BRADSHAW, and Assistant Professor ANNING.*

4E. *Calculus, II. Five hours credit. Professor FORD.*

5. *Solid Analytic Geometry. Two hours credit. Assistant Professor ANNING.*

[6. *Advanced Analytic Geometry. Three hours credit. Professor BRADSHAW.*

A general survey of some of the methods of modern geometry will be given as an introduction to synthetic and analytic projective geometry. Some of the topics treated will be double ratio, the involution, line coördinates, abridged notation, parameter equations, systems of conics, geometry of the triangle and circle, and imaginary elements.

Omitted in 1923-1924.]

8. Projective Geometry, I. *Three hours credit.* Professor BRADSHAW.  
Synthetic projective geometry based largely on the works of Enriques and Reye.
12. Theory of Functions of a Complex Variable, II. *Three hours credit.* Professor MARKLEY.
14. Higher Algebra, II. *Three hours credit.* Professor KARPINSKI.  
This course is a continuation of Course 13, and consists of a more formal introduction to the subjects usually studied in a course in the theory of equations and higher algebra.
- [16. Theory of Functions of a Real Variable, II. *Three hours credit.* Professor MARKLEY.  
Omitted in 1923-1924.]
20. Teachers' Seminary. Geometry. *Two hours credit.* Professor KARPINSKI.
22. Differential and Integral Calculus. Continuation of Course 21. *Two hours credit.* Professor MARKLEY.
24. Advanced Projective Geometry. *Three hours credit.* Professor BRADSHAW.  
A continuation of Courses 8 and 23.
28. Theory of Numbers, II. *Two hours credit.* Professor KARPINSKI.
30. Advanced Calculus. *Three hours credit.* Professor FORD.  
A continuation of Course 29, using Byerly's *Fourier's Series and Spherical Harmonics*. Consideration of Legendre Functions, Bessel Functions, etc., and their applications in mathematical physics; elements of the calculus of variations.
34. Mechanics, II. *Two hours credit.* Professor ZIWET.
36. Vector Analysis. *Three hours credit.* Assistant Professor POOR.
42. Infinite Series and Products, II. *Two hours credit.* Professor FORD.
48. History of Mathematics, II. *Two hours credit.* Professor KARPINSKI.

49. *Mathematical Theory of Statistics. Introductory Course. Three hours credit.* Professor CARVER, Mr. RAIFORD, and Mr. JENKINS.

This course deals with the elementary theory and applications of mathematical statistics, and will include a study of averages, dispersion, coefficients of correlation, and elementary curve fitting.

50. *Mathematical Theory of Statistics. Two hours credit.* Professor CARVER, Mr. RAIFORD, and Mr. JENKINS.

This course is a continuation of Mathematics 49, by which it must be preceded.

- 50Ed. *Mathematical Theory of Statistics. Two hours credit.* Professor CARVER, Mr. RAIFORD, and Mr. JENKINS.

This course is designed particularly to meet the needs of students specializing in Education, and should be preceded by Mathematics 49 or its equivalent.

51. *Introduction to the Mathematical Theory of Interest. Three hours credit.* Professors GLOVER and CARVER.

The following subjects are considered: compound interest and discount, the construction and use of interest tables, annuities certain, sinking funds, determination of interest, depreciation, renewal and other fixed charges in an industrial undertaking, valuation and amortization of securities, loans repayable by equal installments including principal and interest.

52. *Introduction to the Mathematical Theory of Interest and Insurance. Three hours credit.* Professors GLOVER and CARVER.

A continuation of Course 51. The theory of interest is developed further and applied to financial calculations and life insurance. The theory of probability is presented briefly as an introduction to the mathematics of life insurance. The treatment of insurance includes the development of formulae for commutation columns, premiums, reserves, and practice in their computation.

Course 52 should be preceded or accompanied by Course 51.

54. *Finite Differences. Three hours credit.* Professor GLOVER.

This course is intended as an introduction to the subject of finite differences. The elementary theory will be presented in detail, including a development of the more important methods of interpolation and summation. The course will also include a study of several elementary types of difference equations.

56. *Advanced Mathematical Theory of Interest and Life Contingencies, II. Three hours credit.* Professor GLOVER.

58. *Empirical Formulas. Two hours credit.* Professor RUNNING.

60. Mathematical Theory of Statistics. Advanced Course. *Two hours credit.* Professor CARVER.

This course is a continuation of Course 59, by which it must be preceded. The course includes a study of the methods of graduating frequency series as developed by Pearson and Charlier, the higher characteristics of frequency distributions, the theory of probable error, and the theory of correlation.

- [68. Seminary in Casualty Actuarial Theory. *Two hours credit.*

The preparation of various schedules which supplement the annual statements, and a study of current articles dealing with problems in casualty insurance, form the basis of this course.

Omitted in 1923-1924.]

Additional courses in mathematics will be found in the Announcement of the Graduate School.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

*Entrance Work.*

80. Plane Geometry. Assistant Professor ANNING.

81. Solid Geometry. Assistant Professor NELSON.

82. Elementary Algebra. Mr. REID.

*For Undergraduates.*

83. Trigonometry. *Two hours credit.* Mr. REID.

84. Algebra. *Two hours credit.* Assistant Professor ANNING.

2. Analytic Geometry. *Four hours credit.* Mr. FIELD.

- 3a. Calculus. *Four hours credit.* Assistant Professor COE.

86. Integral Calculus. *Two hours credit.* Mr. CRAIG.

5. Solid and Analytic Geometry. *Two hours credit.* Assistant Professor ANNING.

19. The Teaching of Algebra. *Two hours credit.* Professor KARPINSKI.

49. Elements of Mathematical Statistics. *Two hours credit.* Professor CARVER, and Mr. REID.

50. Mathematical Theory of Statistics. *Two hours credit.* Mr. CRAIG.

51. Introduction to the Mathematical Theory of Interest. *Two hours credit.* Mr. JENKINS.

52. Introduction to the Mathematical Theory of Interest and Insurance. *Two hours credit.* Mr. CRAIG.

*For Graduates and Undergraduates.*

48. History of Mathematics. *Two hours credit.* Professor KARPINSKI.
53. Theory of Probability. *Two hours credit.* Mr. JENKINS.
54. Finite Differences. *Two hours credit.* Professor CARVER.
59. Mathematical Theory and Statistics. Advanced Course. *Two hours credit.* Professor CARVER.
90. Differential Equations. *Two hours credit.* Assistant Professor COE.
92. Theory of Functions of a Complex Variable. *Two hours credit.* Professor \_\_\_\_\_.
94. Projective Geometry. *Two hours credit.* Mr. FIELD.
96. College Algebra. Second Course. *Two hours credit.* Professor FORD.
97. Advanced Calculus. *Two hours credit.* Professor FORD.
165. Theory of Functions of a Real Variable. *Two hours credit.* Professor HILDEBRANDT.

## MEDICAL SCIENCES

These courses may not be counted toward the hours of Literary credit required for the Combined Curricula.

### Hygiene and Public Health

Other courses in Hygiene and Public Health are listed in the Medical School, the School of Education, and the Graduate School.

#### SECOND SEMESTER

1. General Hygiene and Public Health. Lectures, recitations, and demonstrations. *Three hours credit.* Professor SUNDWALL and assistants.

This course is open to non-medical students in the University. The principles and practices of health promotion and disease prevention are considered.

### Bacteriology

The student who expects to specialize in Bacteriology should have a good training in the fundamental courses in chemistry. The minimal requirements are Courses 1 and 2 in General Chemistry, Course 3b in Qualitative Chemistry, and Course 10 in Organic Chemistry. Where possible, it is urged that the corresponding, more extended courses be taken, together with work in Physical Chemistry and Quantitative Analysis.

It is to be noted that the laboratory course is intensive in character and extends over a period of eight or twelve weeks, the work requiring daily attendance from 1 to 6, including Saturday morning

Thus, the student may elect in the first semester:

Courses 3L, Bacteriology Laboratory, (December-January); or 3a, Bacteriology Laboratory (December-January-February), and these courses may be followed in the second semester by:

Courses 2, General Bacteriology, lectures; 4, Advanced Bacteriology, laboratory; 4a, Continuation of Course 4.

The courses are given in the West Half of the Medical Building. Students desiring further information should consult Professor NOVY, Room 218.

#### FIRST SEMESTER

3L. Bacteriology. *Three hours credit.* Laboratory work, daily, 1 to 6, including Saturday morning, for eight weeks. Sec. I, Oct.-Nov.; Sec. II, Dec.-Jan. Professor NOVY and Assistant Professor HADLEY.

3a. Bacteriology. *Four hours credit.* Laboratory work, as in the preceding course, but extending over twelve weeks, beginning about December 1. Room 218. Professor NOVY and Assistant Professor HADLEY.

This course is of the same character and extent as Course 3, which is required of medical students.

#### SECOND SEMESTER

2. General Bacteriology. *Five hours credit.* Lectures. Professor NOVY.

4. Advanced Bacteriology. *Three hours credit.* Laboratory work, daily, 1 to 6, including Saturday morning, first half of the semester. Professor NOVY and Assistant Professor EMERSON.

4a. Serum Reactions and Pathogenic Protozoa. *Three hours credit.* Laboratory work, daily, 1 to 6, including Saturday morning, second half of the semester. Professor NOVY and Assistant Professor EMERSON.

Courses 4 and 4a are to be elected together. They are open only to a limited number of students, who must file their applications at least two weeks before the opening of the semester.

Courses 4 and 4a may be given in the first semester if conditions permit.

#### EITHER FIRST OR SECOND SEMESTER

5. Water Analysis. *Three hours credit.* Laboratory work, daily, 1 to 5, for eight weeks. Assistant Professor EMERSON.

6. Food Analysis. *Three hours credit.* Laboratory work, daily, 1 to 5, for eight weeks. Assistant Professor EMERSON and Mr. COLLINS.



7. Research Work in Protozoölogy. *Credit to be arranged.* Professor NOVY and Assistant Professor HADLEY.
11. Research Work in Bacteriology. *Credit to be arranged.* Professor NOVY.

### Physiological Chemistry

The students who expect to specialize in Physiological Chemistry should have a good training in the fundamental courses in chemistry. The minimal requirements are Courses 1 and 2 in General Chemistry, Course 3b in Qualitative Chemistry, and Course 10 in Organic Chemistry. Where possible, it is urged that the corresponding, more extended courses be taken, together with work in Physical Chemistry and Quantitative Analysis.

It is to be noted that the Laboratory Course is intensive in character and extends over a period of eight weeks, the work requiring daily attendance from 1 to 6, including Saturday morning.

Thus, the student may elect in the first semester:

Courses 8, Physiological Chemistry, lectures; 9, Physiological Chemistry laboratory, daily, from 1 to 6, including Saturday morning, for eight weeks. Section I, October-November; Section II, December-January.

#### FIRST SEMESTER

1. Physiological Chemistry. *Three hours credit.* Lectures and recitations. Professor LEWIS.
2. Physiological Chemistry. *Three hours credit.* Laboratory work, daily, 1 to 6, including Saturday morning, for eight weeks. Section I, October-November; Section II, December-January. Professor LEWIS.

Special arrangements will be made for students in the College of Literature, Science, and the Arts for the second semester, when necessary.

### Physiology

The courses in Physiology are arranged for those who intend to become physicians, dentists, teachers and supervisors of school hygiene, and teachers of physical training. They are open to those who have had suitable courses in physics and chemistry and courses in biology, including vertebrate anatomy and histology. The work offered should be of value to those who contemplate specializing in physiology, biology, psychology, or public health.

Course 1 is intended especially for medical students and those who intend to specialize in physiology. It consists of lectures and recitations, and deals with general physiology, the physiology of muscle and nerve, and the circulation. Emphasis is laid on the physical side of physiological processes, as there is a course in physiological chemistry provided for medical students.

Course 2, which is a continuation of Course 1, deals with secretion, digestion, absorption, the function of ductless glands, metabo-

ism, respiration, regulation of temperature, and the physiology of the central nervous system.

Course 3 is a laboratory course, which should be preceded by Course 1 or 4, or some course in general physiology more advanced than those given in secondary schools. In the laboratory the student learns the use of the apparatus and methods employed in ordinary physiological experimentation, and personally observes many of the more important physiological processes. Especial attention is given to the physiology of man, the students alternating as subject and observer.

Course 4 is intended primarily for dental students, for students preparing to be teachers and supervisors of school hygiene, and for teachers of physical training. It covers the ground of Courses 1 and 2, but more rapidly, and is probably more desirable for those who wish to obtain a general view of physiology, but do not intend to specialize in the subject. It should be preceded by courses in physics and chemistry, biology, vertebrate anatomy, and histology.

Course 5 is a course in physiological research, and is open only to advanced students.

Course 6 is arranged especially for students preparing to be teachers and supervisors of school hygiene, and teachers of physical training. It consists of laboratory experiments made by the student, supplemented by lectures and demonstrations. The course deals chiefly with the physiology of man, being similar in many respects to the laboratory course given to medical students. It must be preceded by Courses 1 and 2, or Course 4 in Physiology.

#### FIRST SEMESTER

2. Lectures and recitations. Continuation of Course 1. *Four hours credit.* Daily, beginning March 1. Professor GESELL.
3. Laboratory work. *Three hours credit.* Given in two sections, in the first and last half of the semester. Every afternoon. 1:30 to 5. Professor GESELL, Assistant Professor COPE, and Mr. MUYSKENS.

#### SECOND SEMESTER

1. Lectures and recitations. *Five hours credit.* Daily. Professor GESELL.
4. Lectures and recitations. *Five hours credit.* Daily. Assistant Professor COPE.
5. Research work. *Credit to be arranged.* Professor GESELL.
6. Laboratory work. *Three hours credit.* Three afternoons a week, 1:30 to 5. Professor GESELL. Assistant Professor COPE, and Mr. MUYSKENS.

### **Anatomy**

1. Systematic Course in Gross Human Anatomy. The course is repeated in periods of about twelve weeks each. October to December; January to April. Daily, afternoons, 1 to 5:30 Professor MCCOTTER and assistants.

- 1a. Systematic Course in the Anatomy of the Upper Part of the Body, including the head, neck, thorax, and upper extremity. *Six hours credit.*

- 1b. Systematic Course in the Anatomy of the Lower Part of the Body, including the abdomen, pelvis, and lower extremity. *Six hours credit.*

In this course the student makes a complete dissection of the entire human body, and at the same time the bony framework is studied from bones loaned for this purpose. In each section the student completes the dissection of one-half of the entire body. The dissections are carried out under the guidance of the members of the staff. Daily conferences are held, consisting of recitations and reviews in which the more important features are considered and their morphological and embryological significance discussed.

2. Embryology. Histogenesis, General Histology, Organology, and Anatomy of the Special Sense Organs and Central Nervous System. Two portions with *six hours credit each*. Lectures, recitations, and laboratory work, daily, 8 to 12, including Saturday, October to end of February. Professor HUBER and assistants.

It is the aim in this course to interpret the adult structure of the elementary tissues and organs through their development and histogenesis. In that portion of the course devoted to the study of the central nervous system a complete dissection of the human brain is undertaken and the brain stem is studied by the use of a series of mounted cross-sections. Special consideration is given to the more important motor, sensory, and association paths.

### **Metallurgy**

(See Chemistry)

### **MILITARY SCIENCE AND TACTICS**

Professors CARPENTER, ARTHUR, Assistant Professors HOORN, BROOKS, COLLINS, LOUISELL, and DUNN

Students desiring to obtain a commission in the Officers' Reserve Corps of the United States Army may elect the courses of the Coast Artillery or Infantry Units offered by the Department of Military Science and Tactics. These courses are designed to give a thorough

groundwork in military subjects considered necessary as a part of the education of a commissioned officer in the Reserve Corps of the military forces of the United States.

The courses of the first four semesters of each unit comprise the Basic Group, and the courses of the last four semesters comprise the Advance Group. Elections are for a period of four semesters: that is, for a complete Basic or Advance Group. Once elected, a course becomes a prerequisite to graduation unless the student is formally discharged from this obligation. During the Advanced Course members of the Reserve Officers' Training Corps receive payment of commutation of subsistence from the Government, which amounts to approximately \$200.

In each course, Basic and Advanced, there is a summer camp of six weeks duration. Attendance at the Basic Camp is optional, but attendance at the Advanced Camp is a prerequisite to graduation for students in the Advanced Group. Equipment is furnished and expenses at the camp are paid by the Government.

Successful completion of the courses in any unit of the R. O. T. C. will lead to a recommendation for a commission in the corresponding branch of the Officers' Reserve Corps.

The courses must be elected in the same manner as any other course, and in addition the student must enroll at the R. O. T. C. office.

For further information, see the description of courses and the Special Announcement of the Department of Military Science and Tactics.

### **Basic Group**

#### **FIRST SEMESTER**

1. Coast Artillery and Infantry. Elementary Infantry: Infantry Drill, Regulations, and Marksmanship. *One hour credit.*
3. (Coast Artillery Unit.) Artillery Materiel. *One hour credit.* Guns, carriages, ammunition, and explosives for heavy artillery.
23. (Infantry Unit.) Musketry, Scouting, and Patrolling, and Automatic Rifle. *One hour credit.*

#### **SECOND SEMESTER**

2. (Coast Artillery Unit and Infantry.) Elementary Infantry. *One hour credit.*  
A general course of lectures and practical work in fundamental infantry subjects, such as guard duty, military courtesy and discipline, infantry drill and ceremonies.
4. (Coast Artillery Unit.) Artillery Materiel. *One hour credit.* Lectures and practical work in artillery materiel and map reading and sketching.

24. (Infantry Unit.) Infantry weapons, map reading and sketching. *One hour credit.* Lectures and practical work in bayonet training, grenades, and map reading and sketching.

### Advanced Group

#### FIRST SEMESTER

5. (Coast Artillery Unit.) Orientation, Field Engineering, and Command and Leadership. *Two hours credit.* Lectures, recitations, and practical work in topography and use of instruments.
25. (Infantry Unit.) Minor Tactics and Field Engineering. *Two hours credit.* Lectures and practical work, including exercise of command in connection with instruction of Course I.
7. (Coast Artillery Unit.) Motor Transportation. *Two hours credit.* Course 29 in Mechanical Engineering, a general course covering the fundamental principles of operation and design of automobiles and motor trucks.
27. (Infantry Unit.) Minor Tactics. *Two hours credit.* Lectures and practical work in organization and equipment of various units, offensive and defensive conduct of small units, and tactical employment of infantry weapons.

#### SECOND SEMESTER

6. (Coast Artillery Unit.) Gunnery. *Two hours credit.* Lectures, recitations, and practical work in adjustment of fire for heavy and coast artillery. Fire control apparatus and materiel and plotting of targets.
26. (Infantry Unit.) Accompanying Weapons and Machine Guns. *Two hours credit.* Lectures and practical work with machine guns, 37 mm. gun, and trench mortars.
8. (Coast Artillery Unit.) Military Law, Military History and Policy, and Administration. *Two hours credit.* Elements of common law, military law, rules of land warfare, company administration, and tactical employment of heavy artillery.
28. (Infantry Unit.) Military Law, Military History and Policy, and Administration. *Two hours credit.*

### Advanced Camp

- Coast Artillery Unit. Held at Fort Monroe, Virginia. Six weeks, about June 14 to July 25. Ample time and facilities are allowed for recreation. Chance to visit Washington, D. C., and New York City while en route to camp or return.

Infantry Unit. Held at Camp Custer, Michigan. Six weeks, about June 14 to July 25.

## MINERALOGY AND PETROGRAPHY

### (GROUP II)

All courses offered by this department are given in the Mineralogical Laboratory, which is located in the northeast corner of the Natural Science Building. The mineral collections, Room M 222, are open for inspection daily throughout the session, from 9 to 12 a. m., and 2 to 4 p. m.

Courses 1, 2, 17, and 17a are beginning courses. Course 1 is open to all students desiring an elementary knowledge of Mineralogy, and is given both semesters. Course 1 may be followed to advantage by Courses 4 and 5, or 9. Those desiring a more comprehensive beginners' course are advised to elect Course 2, which serves as the basis for the more advanced work of the department. Course 17 is designed to give a general knowledge of gems and gem minerals, and is open to all students, no previous training in mineralogy or the sciences being necessary. Students desiring a more intimate knowledge of gems should also elect the laboratory work, designated as Course 17a. Students of Chemistry and Chemical Engineering are advised to take Courses 2 and 5, or Courses 1, 4, and 5. Students of Forestry are required to take Courses 1 and 9, and are advised to elect, if possible, Courses 4 and 5. For advanced students of Geology, Courses 2, 5, 6, 9, 10, and 11 are strongly recommended.

CONSULTATION HOURS.—Throughout registration week, Professor KRAUS, 9 to 9:30 a. m., daily. Room 227, N. S.

Professor HUNT, 10 to 11 a. m., daily. Room M 335, N. S.

Assistant Professor PECK, 10 to 11 a. m., daily. Room M 446, N. S.

### FIRST SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours credit.* Professor KRAUS, Mr. RAMSDALL, and Mr. HOLDEN.

This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

- [2. General Mineralogy. Lectures and laboratory work. *Five hours credit.* Professors KRAUS and HUNT, and Assistant Professor PECK.

Students who have successfully completed Course 1 may elect this course as Course 2a and receive *three hours credit.*

Principles of crystallography, physical and chemical properties, origin, formation, decomposition, distribution, uses, and determination of the more important minerals.

Prerequisites: Chemistry 2 and 3.

Omitted in 1923-1924.]

3. Crystal Measurements. Measurements, calculation, and projection of crystals. Lectures and laboratory work. *Three hours credit.* Professor HUNT and Mr. HOLDEN.  
This course is given both semesters and may be pursued for either one or two semesters.  
Prerequisite: Course 2 or its equivalent.
4. Determinative Mineralogy. Laboratory work. *Two hours credit.* Mr. RAMSDELL and Mr. HOLDEN.  
Intended for students who have completed Course 1 or 2 and wish to become more proficient in the determination of minerals by means of their physical characters.
5. Qualitative Blowpipe Methods. *Two hours credit.* Professor HUNT.  
This course involves the use of blowpipe reactions upon charcoal and plaster tablets, as well as other chemical methods useful in the determination of minerals.  
Prerequisites: Course 2 or Courses 1 and 4 in Mineralogy, or Courses 3a and 3b in chemistry.
7. Current Literature of Mineralogy. *One hour credit.* Assistant Professor PECK.  
This course consists of discussions, translations, and abstracts of important current literature.
8. Research Work. Laboratory work. *Credit to be arranged.* Professors KRAUS and HUNT and Assistant Professor PECK.  
For students who are properly qualified, opportunity is given for original research along the lines of crystallographic measurements, chemical crystallography, the formation and origin of minerals, blowpipe methods, and petrography.
9. Lithology. Lectures and laboratory work. *Two hours credit.* Professor HUNT, Mr. RAMSDELL, and Mr. HOLDEN.  
The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination, and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field.  
Prerequisites: Mineralogy 1 and Geology 1.
10. Petrography. Lectures and laboratory work. *Three or four hours credit.* Professor HUNT.  
After reviewing the optical characters and methods of investigation of crystals, the various properties of the important rock minerals are discussed in detail. The mineralogical and chemical composition, texture, genesis, forms of occurrence,

and metamorphism of rocks are then studied. The laboratory work is devoted to the systematic study of rock minerals and rocks, with the aid of the polarizing microscope.

Prerequisites: Mineralogy 2 or 1 and 4, 6 or 6a, and 9.

12. Quantitative Blowpipe Methods. Reading and laboratory work. *Two hours credit.* Professor HUNT.

Practice in assaying by blowpipe method of various kinds of ores, especially those of gold, silver, copper, and lead.

Prerequisites: Courses 1 and 5.

15. Advanced Qualitative Blowpipe Analysis. Reading and laboratory work. *Credit to be arranged.* Professor HUNT.

This course involves the application of blowpipe and other chemical methods in determining the less common minerals, and those containing some of the rarer elements.

Prerequisites: Mineralogy 5 and Chemistry 3 or 3a and 3b.

#### SECOND SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours credit.* Professor KRAUS, Assistant Professor PECK, Mr. RAMSDALL, and Mr. HOLDEN.

This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

17. Gems and Precious Stones. Lectures and demonstrations. *Two hours credit.* Professor KRAUS and Mr. HOLDEN.

This course discusses the general properties, occurrences, and history of the various minerals used as gems and gem minerals. The various methods of determination, especially of imitations and synthetic gems, will also be considered. No previous training in mineralogy or the sciences is required, although an elementary knowledge of chemistry and physics is highly desirable.

Students who have completed Mineralogy 1 may elect this course as 17b for one hour credit.

- [17a. Gems and Precious Stones. Laboratory work. *One hour credit.* Professor KRAUS and assistants.

Students will be given an opportunity to familiarize themselves with the various methods used in the scientific determination of gems and gem minerals. Three hours a week in the laboratory to be arranged. Must be accompanied or preceded by Course 17.

Omitted in 1923-1924.]

3. Crystal Measurements. Measurement, calculation, and projection of crystals. Lectures and laboratory work. *Three hours credit.* Professor HUNT and Mr. HOLDEN.



This course is given both semesters and may be pursued for either one or two semesters.

Prerequisite: Course 2 or its equivalent.

4. Determinative Mineralogy. Laboratory work. *Two hours credit.* Mr. RAMSDELL and Mr. HOLDEN.

Intended for students who have completed Course 1 or 2 and wish to become more proficient in the determination of minerals by means of their physical characters.

6. Physical Crystallography. Lectures and laboratory work. *Five hours credit.* Professor KRAUS, Assistant Professor PECK, and Mr. RAMSDELL.

This course involves a critical study of the various properties of crystals, including the use of the polarizing microscope and other crystallographic optical instruments.

Must be preceded by Course 2 and, if possible, by Course 3. Students desiring to study only the optical properties of crystals may elect this course as 6a and receive *four hours credit*.

8. Research Work. Laboratory work. *Credit to be arranged.* Professors KRAUS and HUNT and Assistant Professor PECK.

For students who are properly qualified, opportunity is given for original research along the lines of crystallographic measurements, chemical crystallography, the formation and origin of minerals, blowpipe methods, and petrography.

9. Lithology. Lectures and laboratory work. *Two hours credit.* Professor HUNT and Mr. RAMSDELL.

This lecture includes, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination, and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field.

11. Petrography. Lectures and laboratory work. *Three hours credit.* Professor HUNT.

This is a continuation of Course 10.

16. Mineralogy and Lithology. Lectures and laboratory work. *Three hours credit.* Professor HUNT, Mr. RAMSDELL, and Mr. HOLDEN.

This course is designed primarily for students of architectural engineering, but may be pursued by students of this college with special permission of the instructor. The first half of the course treats of the elements of crystallography, the physical and chemical properties, uses and determination of the common rock-forming properties, and of those ores from which the metals and materials commonly used for building purposes

are obtained. The second half is devoted to a discussion of the origin, modes of occurrence, description, and uses of the common rocks, with special emphasis upon those employed for structural and decorative purposes. Lectures are also given on the methods of quarrying, finishing, and testing of building stones.

For this course a knowledge of elementary inorganic chemistry is necessary.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

1. Elements of Mineralogy. *Two hours credit.* Professor HUNT, and Mr. HOLDEN.
4. Determinative Mineralogy. *Two hours credit.* Professor HUNT, and Mr. HOLDEN.
5. Qualitative Blowpipe Methods. *Two hours credit.* Professor HUNT.
9. Lithology. *Two hours credit.* Professor HUNT, and Mr. HOLDEN.
8. Special Work. *Credit to be arranged.* Professor HUNT, and Mr. HOLDEN.

### MUSIC

The courses in Music are open to students who evince sufficient ability to pursue them with profit, and are subject to the general rule regarding elections. As all the courses in music run through the entire year, the students are earnestly advised to take them both semesters. The instruments in the Stearns Collection, an "Aeolian Orchestrelle," a "Pianola," "Victor" records, and lantern slides are used for purposes of illustration.

**PRACTICAL MUSIC.**—Credit, not to exceed two hours per semester, will be given for advanced work in Pianoforte, Organ, Violin, Singing, and Advanced Public School Methods, taken in the University School of Music under conditions given below (see Courses 17 and 18).

**CONSULTATION HOURS.**—During the period of registration, daily, 10 to 12, at Room 119, Hill Auditorium.

**RECITATION ROOMS.**—Classes in all courses meet for lectures and recitations in the rooms in the rear section of Hill Auditorium. Entrance only at rear doors.

#### FIRST SEMESTER

**Technical Courses:** 1, 3, 5, 7, 17. (Course 7 is intended primarily for graduates, but is open to undergraduates who receive special permission.)

1. Science of Harmony. *Two hours credit.* Mrs. SNYDER.  
In this course, as in the other technical courses, the student is encouraged to make a practical application of the subject through creative work of a nature conditioned by the scope of the course and the ability of the student.
- [1c. Science of Harmony. *Three hours credit.* Professor MOORE.  
Omitted in 1923-1924.]
3. Simple Counterpoint. *Two hours credit.* Mrs. SNYDER.
5. Double Counterpoint. *Two hours credit.* Professor MOORE.
7. Canon and Fugue. *Two hours credit.* Professor MOORE.
17. Advanced Practical Music. *One or two hours credit.*  
This course may be elected only by written permission of Professor MOORE, and all elections must be in his name. It may be elected thereafter as 17a or 17b, if deemed advisable or deserved, under the same conditions.

#### **Historical and Critical Courses—1a, 9, 11, 13, 15.**

9. History of Music. From the Christian Era to the Beethoven Period. *Three hours credit.* Professor MOORE.
11. Masterpieces of Musical Literature. *Two hours credit.* Professor MOORE.  
Through study and repeated hearings of masterpieces of musical literature the student's horizon is broadened beyond the limited confines of his own particular specialty and he becomes acquainted with the æsthetic principles which underlie the art of music.
- [13. Evolution of Musical Instruments. *Two hours credit.*  
Omitted in 1923-1924.]
- [15. Seminary. Bach, Beethoven, and Brahms. *Two hours credit.*  
Omitted in 1923-1924.]
- [2c. Science of Harmony. *Three hours credit.* Professor MOORE.

#### **SECOND SEMESTER**

##### **Technical Courses:**

2. Science of Harmony. *Two hours credit.* Mrs. SNYDER.
- [2c. Science of Harmony. *Three hours credit.* Professor MOORE.  
Omitted in 1923-1924.]
4. Simple Counterpoint. *Two hours credit.* Mrs. SNYDER.
6. Double Counterpoint. *Two hours credit.* Professor MOORE.
8. Canon and Fugue. *Two hours credit.* Professor MOORE.
18. Advanced Practical Music. *One or two hours credit.*

This course may be elected only by written permission of Professor MOORE, and all elections must be in his name. It may be elected again as 18a or 18b.

**Historical and Critical Courses:**

10. History of Music. From the Beethoven Period to the Ultra Moderns. *Three hours credit.* Professor MOORE.
12. Masterpieces of Musical Literature. *Two hours credit.* Professor MOORE.  
Continuation of Course II.
- [14. Evolution of Musical Instruments. *Two hours credit.*  
Omitted in 1923-1924.]
- [16. Seminary. Continuation of Course 15.  
Omitted in 1923-1924.]
20. Musical Analysis. *Two hours credit.* Professor MOORE.  
Continuation of Course 19.

**Old Bulgarian**

(See Indo-European Languages and Literatures)

**Old Norse**

(See Germanic Languages and Literatures)

**PHILOSOPHY AND PSYCHOLOGY**

**IMPORTANT NOTICE TO STUDENTS.**—There is such wide diversity in the preparation, needs, and aims of individual students that the department cannot lay down inflexible rules with regard to sequence of courses.

Students are advised that courses under *A* come first. Those who have elected no course under *A* should not elect any course under *B* without permission from the instructor.

As a general rule, students should begin with Course 1 in Philosophy, or Course 7 in Psychology.

Students desirous of specializing in Philosophy must begin with Course 1. Further work will be mapped out to meet particular needs.

**GRADUATE WORK.**—Candidates for higher degrees in Philosophy are requested to communicate with Dean LLOYD as soon as possible—preferably before entering.

**RELATED COURSES.**—Various departments offer courses of special value to students of philosophy. The instructors will be glad to point out the more useful related courses to any student who may make application.

**PHILOSOPHICAL SOCIETY.** — The Acolytes is a society to which students, who have distinguished themselves in philosophy, may be elected on recommendation of the faculty.

**PSYCHOLOGICAL LABORATORY.** — The Psychological Laboratory occupies forty rooms of various sizes in the Natural Science building. The rooms are amply supplied with water, gas, high and low voltage currents to furnish power and to replace primary batteries in ordinary experiments.

The equipment includes a complete set of the apparatus required for demonstration and class use, models of the brain and sense organs, a full set of reaction-time instruments, and an unusually large collection of pieces for recording bodily expressing during affective states. The laboratory is particularly well equipped for experiments on sound, and there is an adequate supply of instruments for work in other lines. Such apparatus as is needed for advanced work or research will be procured as required, and many of the newest appliances are added each year. Every facility and encouragement are offered to students of sufficient preliminary training to undertake investigations on some special problem.

**GROUP REQUIREMENTS FOR GRADUATION.**—All the courses offered in this department which are listed under the caption Philosophy fall under Group III (see page 150). Courses in Psychology, and so listed, fall under Group II.

**CONSULTATION HOURS.**—Throughout registration week, a departmental representative, daily 11 to 12. Room 106, M. H.

### Philosophy (GROUP III)

#### FIRST SEMESTER

#### A. *Introductory Courses.* (See notice above.)

1. **Philosophical Introduction.** Lectures, discussion, sections, exercises. *Three hours credit.* Professors WENLEY and VIBBERT, Assistant Professor BLANSHARD, Mr. TRAP, and Mr. BENJAMIN.

The object of this course is to explain to beginners in the most elementary manner possible the meaning, interest, and scope of philosophy; to compare its outlook with other standpoints, such as those of the average man (common-sense), of history, and of science (including psychology). This is a *three-hour* course; every student will attend one discussion section per week; this in addition to the two lectures; after the beginning of the semester the class will be divided into sections for this purpose, and each student will have an opportunity of electing the hour most suitable for the section work.

- 2*p.* **Introduction to the Philosophy of Religion.** *Two hours credit.* Professor WENLEY.

Prerequisite: Course 1 or Course 7.

3. Introduction to Logic. Lectures, collateral reading, and text-book work. Text-book, Sellars' *Essentials of Logic*. Course 1 is a natural prerequisite to this course. *Three hours credit*. Professor SELLARS.

- 6a. *Æsthetics*. Lectures, prescribed reading, and a thesis. *Two hours credit*. Professor PARKER.

The definition, purpose, and standard of Beauty. The application of general æsthetic principles in poetry and the fine arts. The relation of art to science, morality, religion, and philosophy. Text-book, Parker's *Principles of Æsthetics*.

7. Elementary General Psychology. See under Psychology.
8. Introductory Physiological and Experimental Psychology. Sensation, Attention, Association. See under Psychology.

*B. Second Courses.*

- 9a. History of Ancient Philosophy from Thales through Aristotle. Lectures, reading, exercises. *Three hours credit*. Professor LLOYD.

Open to approved students who have had any one of the introductory courses or an equivalent.

- 10a. Introduction to Systematic Ethics. Lectures, discussions, and assigned readings. *Three hours credit*. Professor SELLARS.

This course is designed primarily as a general introduction to ethics. The first part will concern itself with the theory of moral conduct, while the latter part will concern itself with social problems of ethical significance.

10. The Philosophy of Plato. *Three hours credit*. Professor PARKER.

A study of the chief Dialogues (in translation). Lectures, discussions, and prescribed reading.

- [12. Contemporary French Philosophy. A general survey of the main currents of French philosophical thought today in their relations to economic, social, artistic, religious, and cultural tendencies. *Three hours credit*. Professor VIBBERT.

Omitted in 1923-1924.]

- 12a. Contemporary Metaphysics. A comparative study of the stand-points of Absolute Idealism, the New Realism, Pragmatism, and French Anti-rationalism. *Three hours credit*. Professor VIBBERT.

20. The Idealistic World View. A survey of the philosophy of objective idealism, with special study of some of its recent exponents, particularly Bradley, Bosanquet, Royce, and Hocking. *Two hours credit*. Assistant Professor BLANSHARD.

*C. Courses for Undergraduates with Permission and for Graduates.*

- 16a. Political Philosophy. Lectures, discussions, theses. *Two hours credit.* Professor LLOYD.

A history of the theories of society, ancient and modern. Attention will be given especially to the contract theory of the seventeenth and eighteenth centuries.

17. Contemporary Philosophy. Lectures and reports on recent books and articles. *Two hours credit.* Professor SELLARS.

The aim of this course is to bring students with considerable preparation in philosophy into touch with basic problems in epistemology and metaphysics.

18. Modern Logic. *Three hours credit.* Professor PARKER.

An introduction to the study of the more recent developments of logical theory and their applications to the exact sciences. The elements of the theory of propositions, classes, relations, order, and number. Open to graduates and to seniors with permission.

33. Seminar in the Philosophy of Religion. First semester, historical; second semester, systematic. *Two hours credit for seniors.* Professor WENLEY.

This course is designed for graduates and seniors with permission.

To be continued in the second semester.

*D. Courses for Graduates Only.*

33. (*a, b, c, etc.*) Seminars will be organized as required. (See Announcement of the Graduate School.) Professors WENLEY, LLOYD, SELLARS, VIBBERT, and PARKER, and Assistant Professor BLANSHARD.

SECOND SEMESTER

*A. Introductory Courses.* (See notice prefixed to announcement of courses in this department.)

1. Philosophical Introduction. *Three hours credit.* Same as in first semester (which see). Professors WENLEY and VIBBERT, Assistant Professor BLANSHARD, Mr. TRAP and Mr. BENJAMIN.

3. Introduction to Logic. Lectures, collateral reading, and text-book work. Text-book, Sellars' *Essentials of Logic*. Course 1 is the natural prerequisite to this course. *Three hours credit.*

- 5t. Ethics of Social Movements: a Study of Ethical Types as Seen in Social and Industrial Relations. *Two hours credit.* Professor WENLEY.

This course is designed specially for students of (1) history, (2) law and sociology, (3) commerce and administration. The problems will be approached from the standpoint of social

organization. The ethical significance of social and political institutions will be considered, also the relation of these institutions to the conditions of moral progress and stability in a society. Subject in 1923-1924: The Presuppositions of Western Culture. Students are advised that *three* courses fall under 5, distinguished by letters following the No. 5. As each course is complete in itself, all may be elected, and in any order. They deal with phases of ethical and social development subsequent to the French Revolution.

- 6b. The History of Aesthetics. *Three hours credit.* Professor PARKER.

The development of æsthetic theory in relation to the contemporaneous social, philosophical, and artistic movements. The analysis and discussion of representative contributions to this theory. Special attention will be paid to the modern period beginning with Kant. Lectures, reading, and reports.

*B. Second Courses.*

- 9b. History of Modern Philosophy from St. Augustine through Kant. Lectures, reading, and reports. *Three hours credit.* Professor LLOYD.

The course is open to approved students who have had any one of the introductory courses or an equivalent. Course 9a, while not required, furnishes desirable preparation for this course.

11. The Philosophy of Aristotle. Special attention will be given to the *Metaphysics, Psychology, and Ethics*. *Three hours credit.* Professor PARKER.

Prerequisite: Either Course 9a or Course 10.

13. Contemporary French Philosophy with special reference to Henri Bergson and Emile Boutroux. *Three hours credit.* Professor VIBBERT.

A detailed exposition of the philosophy of the two most important contemporary French thinkers; the relations and contrast between their points of view.

14. Metaphysics. *Three hours credit.* Professor PARKER.

A study of ultimate problems: substance, law and individuality, purpose, and causality the one and the many, the self and nature. Open to graduate students and seniors with permission.

15. The Principles and Main Concepts of Science. *Three hours credit.* Professor SELLARS.

This course is designed primarily for students of the physical and biological sciences, but is open to all who are interested in the philosophical aspects of science. The postulates of science; the methods of science; the main concepts employed.



*C. Courses for Undergraduates with Permission and for Graduates.*

166. Political Philosophy. Special course. *Two hours credit.* Professor LLOYD.

A critical study of society; the principles of political association and evolution; progress, the relations of political and industrial institutions to fundamental ideas of philosophy and religion; the personal and the social.

This course is recommended to students of history, to those who have had or intend to take Course 16a, and to students of economics and sociology.

21. Theory of Valuation. *Two hours credit.* Professor SELLARS.

This course will be devoted to a study of the nature and significance of judgments of value. Both the personal and the social origin of values will be considered, and examples for analysis will be taken from economics, æsthetics, ethics, and religion.

23. Types of Logical Theory. *Three hours credit.* Assistant Professor BLANSHARD.

An analysis and comparison of three main conceptions of logic: the formal logic of Aristotle; empirical logic, as differently represented by Mill and the pragmatists; and concrete logic, as represented by Bosanquet.

- [19. Problems of Human Conduct. *Two hours credit.* Professor LLOYD.

A study of the moral ideal, motive, and judgment of conscience and will. An elementary course in ethical theory, partly historical and partly critical and constructive.

Omitted in 1923-1924.]

- 33r. Seminar in the Philosophy of Religion. *Two hours credit for seniors with permission.* A continuation of Course 33p, given in the first semester. Professor WENLEY.

*D. Courses for Graduates Only.*

33. (*a, b, c, etc.*) As in first semester. (See Announcement of the Graduate School.)

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

*Introductory Courses.*

- 1s. Introduction to Philosophy. *Two hours credit.* Professor SELLARS, and Mr. TRAP.

9. Introduction to Logic. *Two hours credit.* Professor SELLARS,  
*For Graduates and Undergraduates.*

- 5s. Ethics. *Two hours credit.* Professor PARKER.

16s. *Æsthetics. Two hours credit. Professor PARKER.*

11s. *History of Philosophy. Two hours credit. Professor WENLEY.*

*For Graduates, and Undergraduates with Special Permission.*

53s. *History of Philosophy in the Nineteenth Century. Two hours credit. Professor WENLEY.*

### Psychology

#### (GROUP II)

Work in psychology should begin either with Course 7 or Course 8. Course 8 is recommended to all who expect to take any considerable number of courses. It should be noted that Courses 8a and 8b are needed to complete a survey of the subject, and if the student has but one semester to give to psychology he should elect Course 7. Course 7 may not be elected after or together with Course 8, although Course 8 may, by special permission, be elected after Course 7.

#### FIRST SEMESTER

##### A. *Introductory Courses.*

7. *Elementary General Psychology. Three hours credit. Lectures and discussions, with reports on outside reading. Text-book, Pillsbury's Essentials of Psychology. Professors PILLSBURY and ADAMS, Assistant Professor GRIFFITTS, Mr. FORD, Dr. DIMMICK, and Mr. SKAGGS.*

A rapid survey of the facts of mind. Intended primarily for students of pedagogy, but open to others who are not interested in the experimental and physiological aspects of Psychology.

- 8a, c. *Introductory Physiological and Experimental Psychology. Sensation, Attention, Association. Three to five hours credit. Professor PILLSBURY, Assistant Professor GRIFFITTS, Mr. BROWN, and Dr. GUERNSEY.*

It is suggested that six-year literary-medical students, students of biology, and others who desire more than the rudiments of psychology begin their work with this course. Lectures, discussion, and laboratory work. It may be elected as 8a, *three hours credit*, without laboratory work; as 8c, *four hours credit*, with two lectures and four hours of laboratory work; or as 8e, *five hours credit*, with two lectures, a discussion section and four hours of laboratory work. Students who have had previous work in psychology and desire only the laboratory work and discussion section may also elect it as 8a 1, *three hours credit*. Text-book, Pillsbury's *Fundamentals of Psychology*.

*B. Second Courses.*21. Mental Measurements. *Two hours credit.* Dr. SKAGGS.

A general and elementary course intended to acquaint the student with methods of constructing and applying mental measuring scales. A review is made of past accomplishments and future possibilities of mental measurements. Representative types of mental tests will be considered, with special emphasis upon the Stanford Binet. Practice in giving the tests will be afforded, although this aspect will not be emphasized.

[22. General Comparative Psychology. *Two hours credit.* Professor SHEPARD.

An elementary course on animal behavior in relation to the human.

Omitted in 1923-1924.]

25m. Psychology of Management. *Two hours credit.* Professor ADAMS.

A psychological study of motives and incentives. In the first half of the course, habit, fatigue, monotony, distraction, illumination, ventilation, etc., will be discussed. In the second half, the mental adjustment of the worker will receive consideration.

Prerequisite: Psychology 7.

25s. Psychology of Salesmanship. *Two hours credit.* Mr. FORD.

An analysis of the mental states of buyer and seller and the psychological factors involved in sales-management. Lectures, text-book, and written exercises.

Prerequisite: Psychology 7 or its equivalent.

26. Sensation, Image, and Perception. *Two or three hours credit.* Dr. DIMMICK.

A detailed study of the elements of mental life in their simpler combinations and with special reference to their application in the experiences of everyday life. The laboratory work will deal in particular with such problems as the laws of color and the application of those laws to lighting effects, color or combinations in decoration, patterned cloth, etc.; the laws of sound and their application to various forms of music, etc.

30. Individual Differences. *Two or three hours credit.* Assistant Professor GRIFFITTS.

The nature, extent, significance, and measurement of individual differences. Lectures, reports, discussions. This course may be elected as 30a, *two hours credit*, or 30b, *three hours credit*. Those electing 30b will choose some topic for special study or investigation, the results to be presented in a written report at the close of the semester. Where advisable, the work begun on any special problem in this course may be continued by electing Course 32 or 32a.

32. Special Problems in Individual Differences, including problems in vocational psychology. *Two to five hours credit.* Assistant Professor GRIFFITTS.

Each student will devote most of his time in this course to his special topic or problem. This class will meet once a week for consultation, discussion, etc., and each student will report the results of his work to the group toward the close of the semester. The work on any problem may be continued the second semester by electing Course 32a. This course should be preceded by Course 24 or 30.

31. Biometric Methods. *Two hours credit.* Mr. BROWN.

A course in the methods of analysis applicable to the quantitative data of social, psychological, and biological phenomena. The various methods will be studied from both theoretical and practical points of view. The theoretical treatment will be non-mathematical, but a knowledge of algebra is essential to a comprehension of either theory or practice. As regards application of methods, a semi-laboratory procedure will be followed, in which actual data chosen to suit the special interests of individual students will be analyzed.

An additional hour may be elected by those students having a knowledge of the calculus, who wish to gain a knowledge of the mathematical theory of biometry.

33. Physiological Psychology of the Senses. *Two hours credit.* Professor PILLSBURY.

A study of the main results and technique of the senses except vision. This with Course 41 will give a survey of the psychology of sensation.

- [34. The Psychology of Language. *Two hours credit.* Professors PILLSBURY and MEADER.

Among the subjects treated are the laws of thought and language as a form of expression, the genesis of speech, and the psychology of syntax.

Professor SCOTT will give four lectures on the origin of language. Omitted in 1923-1924.]

35. Psychology of Volition. *Two hours credit.* Professor ADAMS. A survey of the experimental and theoretical work of problems of volition. Readings, reports, and discussions.

36. Advanced Applied Psychology. *Two or more hours credit.* Professor ADAMS and Mr. FORD.

a. Advertising. Reports on the literature of the subject and laboratory work on the more important psychological phases of advertising.

b. Experimental investigations on the problems of employment selection, the effect of environmental conditions upon the out-

put, and the effect of the motives upon the output, together with reports on the literature of such subjects.

c. Salesmanship.

D. *Courses Primarily for Graduates.*

50. History of Modern Psychology. Primarily for graduates. *Two hours credit.* Professor PILLSBURY.

This course will present the more important tendencies in psychology from the Greeks to Locke, in an endeavor to give an historical origin of current theories.

51. Advanced Systematic Psychology. Lectures on attention, association, and the more complicated mental processes. *Three hours credit.* Professor SHEPARD.

52. Advanced Course in Experimental Psychology. Original investigation. *Credit and hours to be arranged.* Psychological Laboratory. Professors PILLSBURY and ADAMS and Assistant Professor GRIFFITHS.

53. Psychological Journal Club. The members of the teaching staff and the graduate students in Psychology will meet every other Thursday night to review the current literature.

V. *Graduate Seminars.*

54. Graduate seminars will be organized as required. Professors PILLSBURY, SHEPARD, and ADAMS, Assistant Professor GRIFFITHS, and others.

SECOND SEMESTER

A. *Introductory Courses.*

7. Elementary General Psychology. Same as in first semester (which see). *Three hours credit.* Professors PILLSBURY and ADAMS, Assistant Professor GRIFFITHS, Mr. FORD, Dr. DIMICK, and Mr. BROWN.

B. *Second Courses.*

- 8b, d, f. Introductory Physiological and Experimental Psychology. Feelings, emotions, and the higher intellectual processes. *Three hours credit.* Professor PILLSBURY, Assistant Professor GRIFFITHS, Mr. BROWN, and Dr. GUERNSEY.

Continuation of Course 8a. This course may, by special permission, be elected as an introductory course without being preceded by Course 8a. It may be elected as 8b, *three hours credit*; as 8d, *four hours credit*, with two lectures and four hours of laboratory work; or as 8f, *five hours credit*, with two lectures, one quiz section, and four hours of laboratory work. It may be elected for laboratory and quiz as 8f 1, *three hours credit*.

- 21a. Problems in Mental Measurements. *Two or three hours credit.* Dr. SKAGGS.

The course will be conducted as a seminar and is only open to those who have had Course 21 or its equivalent. The student will secure actual practice in giving certain test and will select some problem for special study. Lectures and discussions on more technical points of mental measurement than given in Course 21.

23. Psychology of Memory. *Two hours credit.* Professor PILLSBURY.

A study of the recent memory investigations. The results, methods, and instruments will be studied, and some of the more important experiments will be repeated. Some time will also be devoted to a study of the experimental investigations of legal evidence, the *Ausage* experiments of Stern and others.

24. Vocational Psychology. *Two hours credit.* Assistant Professor GRIFFITTS.

A study of the psychological principles involved in the selection of employees and in the choice of a vocation. Different methods now in use will be studied and criticised. This course may be elected as 24a, *two hours credit*, or as 24b, *three hours credit*. Those electing 24b will attend a special discussion section.

- 25a. Psychology of Advertising. *Three hours credit.* Professor ADAMS.

A psychological study of attention, association, interest, desire, conviction, action, and satisfaction as they are related to advertising. Text, Adams' *Advertising and Its Mental Laws*. Thesis and assigned readings.

Prerequisite: Psychology 7.

255. Psychology of Salesmanship. *Two hours credit.* Mr. FORD.

An analysis of the mental states of buyer and seller and the psychological factors involved in sales management. Lectures, text-book, and written exercises.

Prerequisite: Psychology 7 or its equivalent.

28. Psychology of the Abnormal and Occult. *Two hours credit.* Professor PILLSBURY.

A critical survey of the more important facts of mental derangement that throw light upon the principles of general psychology. The more interesting forms of modern occultism will be considered in their bearings upon psycho-pathology.

C. Courses for Undergraduates with Permission and for Graduates.

- 32a. Special problems in individual differences, including problems in vocational psychology. Assistant Professor GRIFFITTS.

This course is a continuation of Course 32, first semester, although the work may be begun either semester.

36. Advanced Applied Psychology. *Two or more hours credit.* Professor ADAMS and Mr. FORD.
- a. Advertising. Reports on the literature of the subject and laboratory work on the more important psychological phases of advertising.
  - b. Experimental investigations on the problems of employment selection, the effect of environmental conditions upon the output, and the effect of the motives upon the output, together with reports on the literature of such subjects.
  - c. Salesmanship.

[41. Color Vision. *Two hours credit.* Professor SHEPARD. Omitted in 1923-1924.]

- [42. General Course in Experimental Phonetics. Lectures and laboratory work. *One or two hours credit.* Professors MEADER and ———.]

This course, which is designed for students of language, psychology, oratory, and singing, will deal with the anatomy and physiology of the human voice, the production of speech sounds, description and classification of speech sounds, mechanical methods of recording speech sounds, study of speech records. As the number of students admitted to this course will be small, those desiring to elect it are advised to apply early to one of the instructors in charge.

Omitted in 1923-1924.]

44. Psycho-physical Methods. *Two hours credit.* Dr. DIMMICK. A discussion, with demonstrations and experiments, of the historic methods.
- 45a. Special Problems in the Psychology of Advertising. *Two hours credit.* Professor ADAMS.  
Advanced problems in the psychology of advertising to be selected to meet the demands of the students. Limited to 8.  
Prerequisite: Psychology 25a.
- 45s. Special Problems in Salesmanship. *Credit to be arranged.* Mr. FORD.  
Readings in recent literature and experimental investigations in sales problems. Limited to 8.  
Prerequisite: Psychology 25s.
46. Psychology of Character. *Two hours credit.* Professor ADAMS. A review and criticism of the methods which had been used for reading character, together with a constructive summary of the experimental work which has been performed in scientific laboratories upon this subject.

47. Instinct, Feeling, and Emotion. *Three hours credit.* Assistant Professor GRIFFITTS.

The first part of this course will be historical and theoretical, followed by a study of experimental methods and results. The relation of instinct to interest, choice, reason, character, etc., will be discussed, as well as the reasons for individual differences in the strength and mode of expression of these inherited tendencies. Lectures, reports, and discussions

48. Race Psychology. *Two hours credit.* Assistant Professor GRIF FITTS.

A study of (a) the physical and mental differences between races and branches of each race; (b) the causes of these differences; (c) application of the preceding to race problems in this country and to certain international problems. For seniors and graduates.

*D. Courses Primarily for Graduates.*

- 50a. History of Modern Psychology. Professor PILLSBURY. Continuation of Course 50.

57. Advanced Comparative Psychology. *Three hours credit.* Professor SHEPARD.

A study of the evolution of mental processes and their comparative development in different forms. The lectures will be accompanied by laboratory work on the learning processes in animals.

- [58. The Central Nervous System and Mental Processes. *Two hours credit.* Professor SHEPARD.  
Omitted in 1923-1924.]

- [59. Laboratory Technique. A study of apparatus and methods. *One hour credit.* Professor SHEPARD.  
Omitted in 1923-1924.]

- 52a. Advanced Experimental Psychology. As in Course 52, in first semester. Professors PILLSBURY, SHEPARD, ADAMS, and Assistant Professor GRIFFITTS.

- 53a. Psychological Journal Club. As in first semester (which see).

*V. Graduate Seminars.*

- 54a. Graduate Seminars. As in first semester (which see).

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

*Introductory Courses.*

75. Elementary Psychology. *Two hours credit.* Mr. FORD, and Dr. DIMMICK.



*For Graduates and Undergraduates.*

- 8as. Experimental Psychology, I. *Two hours credit.* Mr. BROWN.
- 8bs. Experimental Psychology, II. *Two hours credit.* Mr. BROWN.
- 18s. Psychology for Public Health Nurses. *Two hours credit.* Assistant Professor GRIFFITTS.
- 23. Psychology of Memory and Imagination. *Two hours credit.* Dr. DIMMICK.
- 24s. Vocational Psychology. *Two hours credit.* Assistant Professor GRIFFITTS.
- 25as. Psychology of Advertising. *Two hours credit.* Professor ADAMS.
- 25ss. Psychology of Salesmanship. *Two hours credit.* Mr. FORD.
- 28s. Psychology of the Abnormal and Occult. *Two hours credit.* Dr. DIMMICK.
- 30s. Individual and Race Differences. *Two hours credit.* Assistant Professor GRIFFITTS.
- 35. Psychology of Volition. *Two hours credit.* Professor ADAMS.
- 46s. Psychology of Character. *Two hours credit.* Professor ADAMS.
- 49s. Psychological Theory of Music. *Two hours credit.* Mr. BROWN.
- 54s. Special Laboratory Work.

## PHYSICS

### (GROUP II)

Students entering without a preparatory course in Physics will be allowed to enter Courses 1 and 2 only after they have completed Course Z or have completed one year of College Mathematics (equivalent to Courses 1 and 2).

Students expecting to teach physics in high schools should take at least the following courses: 1, 2, 5, 7, and 9.

The lectures in Courses 1, 2, 1E, and 2E are given in the large lecture room at the west end of the Physics Laboratory.

Two hours of laboratory work will be required for *one hour credit*. No laboratory work can be taken in periods of less than two consecutive hours. There are no laboratory fees for courses in Physics.

A suggested program in Physics is outlined on page 185.

**CONSULTATION HOURS.**—Throughout registration week, Professor RANDALL, or a representative, will be in his office in the Physics building, 2:30 to 3:30 daily, to advise students desiring to elect courses in Physics.

#### FIRST SEMESTER

*A. Courses Primarily for Undergraduates.*

Z. Physics for Beginners. *Four hours credit.* Mr. \_\_\_\_\_.

This course is intended for students who have not presented

Physics for admission and who wish to pursue studies in the department of Physics.

*No credit toward graduation will be allowed for this course unless it is followed by Course 1.* It is not counted as part of the collegiate work in Physics required for admission to the Medical School.

1. General Physics: Mechanics, Sound, and Heat. *Four hours credit.* Lectures, recitations, and laboratory work. Professors RANDALL and COLBY, Assistant Professor LINDSAY, Dr. FAZEL, Mr. BRONK, Dr. DUFFENDACK, and Mr. LOCKROW.

Either preparatory Physics and Plane Trigonometry or one year of college Mathematics (equivalent to Courses 1 and 2) is prerequisite for this course. It may, however, be elected at the same time as Mathematics I by students who have had high school physics or Physics Z. Students who transfer their credits to the College of Engineering will be required to offer Courses 1 and 1a as the equivalent of Course 1E.

All elections, including those of upperclassmen, must be made through the Classification Committee.

Course 1a may profitably be taken with Course 1.

- 1a. Problem Course. *One hour credit.* Assistant Professor SLEATOR. This course may be taken in conjunction with Physics 1, or afterward.
2. General Physics. *Four hours credit.* Magnetism, Electricity, and Light. Lectures, recitations, and laboratory work. Assistant Professor SLEATOR, Dr. CORK, Dr. COOLEY, Mr. MARTIN, and Mr. FRUTH.

This course must be preceded by Course 1. Students who transfer their credits to the College of Engineering will be required to offer Courses 2 and 2a as the equivalent of Course 2E.

All elections must be made through the Committee on Classification.

Coure 2a may profitably be taken with Course 2.

- 2a. Problem Course. *One hour credit.* Continuation of Course 1a. As given the first semester, this course is a part of Physics 2E.
- 1d. General Physics. For dental students only. Profesor RANDALL.
3. Modern Physics. *Two hours credit.* Professor RANDALL, Assistant Professor BARKER, and other members of the staff  
Informal lectures and discussions, with demonstrations treating radioactivity, X-rays, the vacuum tube, and other electron and allied phenomena which lead to the theory of matter. The course will be non-mathematical, requiring as prerequisites Courses 1 and 2.

Courses 3 and 4 undertake to meet the needs both of those students who desire accurate information about recent work for the purpose of general culture and of those specializing in other sciences in which the newer physics has an increasing importance. Students specializing in Physics will also find it a suitable introduction to advanced courses.

*B. For Graduates and Undergraduates.*

5. Electrical Measurements. Lectures, recitations, and laboratory work. *Four hours credit.* Professor SMITH and Assistant Professor SAWYER.

This is an intermediate course in electricity and magnetism, and may be elected by those who have completed Course 2. The principles of electrical behavior, including those of magnetism and electrostatics, are critically studied from the viewpoint of electron theory. The laboratory work is designed to illustrate and emphasize these principles, and to give the student some personal experience in the careful use of electrical instruments. The experiments include the calibration of ammeters and voltmeters, and the use of standard cells with the potentiometer, for the accurate measurement of current, resistance, and electromotive force.

A knowledge of calculus is desirable.

7. Mechanics. *Three hours credit.* Lectures and recitations. Assistant Professor LINDSAY.

The mechanics of solids, liquids, and gases, involving such topics as the various types of motion, moments of inertia, elasticity, friction, viscosity, capillarity, etc. A knowledge of calculus is required.

9. Sound. *Four hours credit.* Recitations and laboratory work. Assistant Professor RICH.

The class work is based on Barton's *Text-Book on Sound*, with lectures and reference reading.

11. Heat. *Four hours credit.* Dr. CORK.

The classroom work covers the fundamental principles of heat phenomena. It includes such subjects as expansion, specific heats and temperature, change of state and Van der Waal's equation, elementary kinetic theory, and the absolute scale of temperature.

In the laboratory special emphasis is placed on modern accurate methods of measuring various heat quantities, the need of the determination of which often rises in the course of scientific experimentation and research. The student is made familiar with the gas thermometer, thermopile, interferometer measurement of thermal expansion, measurement of specific heats, heats of fusion and of vaporization, thermal conductivities, etc.

- [13. Direct Current Machinery. *Two hours credit.* Lectures and laboratory work. Professor WILLIAMS.  
Omitted in 1923-1924.]
15. Alternating Currents. *Two hours credit.* Lectures and laboratory work. Mr. BRONK.  
This course should precede Course 16. Calculus is a prerequisite, and it should be preceded by Course 5.
19. Geometrical Optics. *Three hours credit.* Lectures, recitations, and occasional laboratory exercises. Assistant Professor SAWYER.  
A course in the fundamental methods and principles of geometrical optics and the design of optical instruments. Thick lens optics the ideal optical instrument, the aberration theory of Abbé, a study of the characteristics of optical instruments and exercises in the design of simple instruments, discussions of the various types of optical glass.
- C. *Primarily for Graduates.*
25. Theory of Heat. *Two hours credit.* Professor RANDALL.  
This is a theoretical course in which selected chapters from the subject of heat are discussed.
27. Theory of Electricity and Magnetism. *Three hours credit.* Dr. FAZEL.  
This course should be preceded by a course in electrical measurements; a knowledge of calculus is also required.
29. Special Problems. *Credit to be arranged.*  
Research work on special problems under the direction of some member of the teaching staff.
31. Thermodynamics. *Three hours credit.* Professor COLBY.  
This course with Physics 24 will treat the two laws from the points of view of Physics (31) and Chemistry (24). The former will be mathematically more rigorous and will in its applications prepare for the physical problems of gas theory, radiation, etc. The second course will emphasize in applications such problems as the phase rule and chemical equilibrium. Both courses may be elected by the same student, but the total credit will then be reduced to five hours.
33. Quantum Mechanics. *Three hours credit.* Professor COLBY.  
This is a general course in the Quantum Theory, with special reference to the origin of spectra.
35. Relativity. *Three hours credit.* Lectures and recitations. Dr. KIMBALL.

37. Reading of German Texts and Journals. *One hour credit.* Professor LEE.  
The purpose of this course is to cultivate facility in reading the German literature of Physics.
41. Seminary. *Two hours credit.* The choice of the subject will be made by those who elect the course.
45. Physics Colloquium.  
Reports on original work, together with analysis and discussion of important articles in current physical literature. All instructors and assistants in the department take part in the Physics Colloquium.

## SECOND SEMESTER

*A. Courses Primarily for Undergraduates.*

1. General Physics: Mechanics, Sound, and Heat. *Four hours credit.* Lectures, recitations, and laboratory work. Assistant Professor SLEATOR, Dr. CORK, Dr. COOLEY, Mr. MARTIN, and Mr. FRUTH.

Students who transfer their credits to the College of Engineering will be required to offer Courses 1 and 1a as an equivalent of Course 1E.

Either preparatory Physics and Plane Trigonometry or one year of college mathematics (equivalent to Courses 1 and 2) is prerequisite for this course. It may, however, be elected at the same time as Mathematics 1 by students who have had high school physics or Physics Z.

Course 1a may profitably be taken with Course 1.

- 1a. Problem Course. *One hour credit.*  
As given the second semester, this course is a part of Physics 1E.

2. General Physics. *Four hours credit.* Magnetism, Electricity, and Light. Lectures, recitations, and laboratory work. Professors RANDALL and COLBY, Assistant Professor LINDSAY, Dr. FAZEL, Mr. BRONK, Dr. DUFFENDACK, and Mr. LOCKROW.

This course must be preceded by Course 1.

Students who transfer their credits to the College of Engineering will be required to offer Courses 2 and 2a as an equivalent of 2E.

- 2a. Problem Course. *One hour credit.* Assistant Professor SLEATOR.

*B. For Graduates and Undergraduates.*

4. Modern Physics. *Two hours credit.* Professor RANDALL, Assistant Professor BARKER, and other members of the staff.  
This course is a continuation of Course 3.

6. Electrical Measurements. *Four hours credit.* Lectures, recitations, and laboratory work. Professor SMITH.  
A continuation of Course 5, dealing with the phenomena of the magnetic field, electromagnetic induction, and transient currents. Graphical methods are used in the application of alternating currents to the measurement of capacity and inductance. Especial attention is given to the theory of the magnetic circuit and the determination of the magnetization and hysteresis curves of iron and steel. A working knowledge of the calculus is required.
8. Architectural Acoustics. *Two hours credit.* Assistant Professor RICH.  
A lecture course on the causes underlying good and bad acoustical conditions in auditoriums, with illustrative problems on sound transmission, distribution, and absorption. This course is designed primarily for architects, but is also open to other students.
12. Light. *Four hours credit; hours to be arranged.* Lectures, recitations, and laboratory work. Assistant Professor MEYER.  
This is an intermediate theoretical and experimental course. A knowledge of calculus is required.
14. Electron Theory and Radioactivity. *Two hours credit.* Lectures and laboratory work. Professor SMITH.  
The lectures treat of the electron current through gases and metals, the charge and mass of an electron, thermionic currents, Zeeman effect, positive rays, and the constitution of the atom, as well as the phenomena of radioactivity.  
The laboratory work is largely with radioactive substances. The distinguishing characteristics of alpha rays, beta rays, and gamma rays are studied, and the half-life periods of several substances are determined by each student.
16. Vacuum Tubes in Radio Communication. *Two hours credit.* Mr. BRONK.  
The theory of the transmission of electricity through gases will be treated in this course together with a study of the different types of tubes used in radio work. The characteristics of such tubes will be determined experimentally and the electric circuits employed in their use will receive considerable attention.  
Prerequisite: Course 15 in Physics.
18. Measurements of High Temperatures. *Two hours credit.* Dr. CORR.  
An experimental course accompanied by lectures covering the present methods of high temperature measurement. It includes the calibration and use of the resistance thermometer, the resistance thermometer bridge, the thermocouple, the thermo-

couple potentiometer, various technical types of indicators and recorders, the total radiation and optical pyrometers, and laboratory methods of producing high temperatures. The subject matter is taken up from both a practical and a theoretical standpoint.

20. Physical Optics. *Three hours credit.* Assistant Professor SLEATOR.

This is a course in the theory of light, and will follow Drude.

*C. Courses Primarily for Graduates.*

24. Thermodynamics. *Three hours credit.* Professor COLBY.  
This course, as described under 31, first semester, will treat the subject from the standpoint of chemistry.

26. Radiation. *Two hours credit.* Professor RANDALL.  
A lecture course dealing principally with series relations in spectra; the Zeeman and Stark effects; theories of atomic structure and allied topics.

28. Electricity and Magnetism. *Three hours credit.* Dr. FAZEL.  
This course is a continuation of Course 27.

30. Special Problems. As given in Course 29, first semester.

32. The Kinetic Theory of Gases. *Three hours credit.* Lectures and recitation. Dr. KIMBALL.  
Discussion of the laws of probability, Maxwell-Boltzman law, molecular magnitudes, Brownian movements and Einstein's equation, absorption of gases, and other selected topics. Experimental methods will be considered.

34. Atomic Structure. *Three hours credit.* Assistant Professor BARKER.  
A review of recent developments in the theory of atomic and molecular structure, with numerous references to current literature.

36. X-Rays. *Three hours credit.* Lectures and recitations. Assistant Professor LINDSAY.  
The fundamental facts and theories connected with the production and measurement of X-rays, together with a study of the development of the subject and its bearing on modern ideas of the structure of matter.

38. French Reading. *One hour credit.* Professor LEE.  
This course is of the same nature as the one in German reading (37) given during the first semester.

42. Seminary. *Two hours credit.* The choice of subject will be made by those who elect the course.

46. Colloquium.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

*For Undergraduates.*

Z. Physics for Admission. Dr. CORK.

1. General Physics. Mechanics, Sound, and Heat. *Four hours credit.* Professor RANDALL, Assistant Professor LINDSAY, Dr. DUFFENDACK, Mr. ST. PETER, and Mr. BRONK.

2. General Physics. Magnetism, Electricity and Light. *Four hours credit.* Assistant Professors RICH and SAWYER, Dr. CORK, Mr. ST. PETER, and Mr. BRONK.

1 and 2. General Physics. *Eight hours credit.* Assistant Professor BARKER and Mr. BRONK.

1a. Problems. *One hour credit.* Assistant Professor SLEATOR.

2a. Problems. *One hour credit.* Assistant Professor SLEATOR.

1E. General Physics. *Five hours credit.* Professor RANDALL, Assistant Professors LINDSAY and SLEATOR, Mr. ST. PETER, and Mr. BRONK.

2E. General Physics. *Five hours credit.* Assistant Professors RICH, SLEATOR, and SAWYER, Dr. CORK, Mr. ST. PETER, and Mr. BRONK.

1D. General Physics. *Four hours credit.* Professor RANDALL, Assistant Professor LINDSAY, Dr. DUFFENDACK, Mr. ST. PETER, and Mr. BRONK.

2D. General Physics. *Four hours credit.* Assistant Professors RICH and SAWYER, Dr. CORK, Mr. ST. PETER, and Mr. BRONK.

1b. Laboratory Work in Mechanics, Sound, and Heat. *One hour credit.* Mr. ST. PETER.

2b. Laboratory Work in Electricity, Magnetism, and Light. *One hour credit.* Mr. ST. PETER.

3f. Teachers' Course. *Two hours credit.* Assistant Professor RICH.

4. Modern Physics. *Two hours credit.* Assistant Professor BARKER.

4s. Laboratory Arts. *Two hours credit.* Dr. DUFFENDACK.

5. Electrical Measurements. *Four hours credit.* Assistant Professor SAWYER.



*For Graduates and Undergraduates.*

6. Electrical Measurements. *Four hours credit.* Professor SMITH.
7. Mechanics. *Two or three hours credit.* Assistant Professor LINDSAY.
9. Sound. *Four hours credit.* Assistant Professor RICH.
11. Heat. *Four hours credit.* Dr. CORK.
12. Light. *Four hours credit.* Assistant Professor SLEATOR.
14. Electron Theory and Radio Activity. *Two hours credit.* Professor SMITH.
16. Vacuum Tubes in Radio Communication. *Two hours credit.* Mr. BRONK.
18. Measurements of High Temperatures. *Two hours credit.* Dr. CORK.

*For Graduates.*

- 24, 31. Thermodynamics. *Three hours credit.* Professor COLBY.
27. Electricity and Magnetism. *Two hours credit.* Professor COLBY.
29. Advanced Laboratory Work. *Two hours credit.* Assistant Professor SLEATOR.
32. Kinetic Theory of Mathematics. *Two hours credit.* Dr. KLEIN.
33. Atomic Structure. *Two hours credit.* Dr. KLEIN.
34. Electron Theory. *Two hours credit.* Assistant Professor BARKER.
36. X-Rays. *Two hours credit.* Assistant Professor LINDSAY.
38. Research. Professor RANDALL.

**Physiological Chemistry**

(See Medical Sciences)

**Physiology**

(See Medical Sciences)

**Political Economy**

(See Economics)

## POLITICAL SCIENCE

## (GROUP III)

The courses in Political Science cover elementary as well as advanced and specialized study of the entire field. A list of all courses presented in this department is given below. Some of these are not given every year. This list is so arranged as to indicate the subordinate fields of study within the scope of Political Science. It is followed by a description of such courses as are offered during the year for which this Announcement appears.

*Courses 1 and 2, with a grade of C or higher, are prerequisites for all other courses in Political Science.*

CONSULTATION HOURS.—Throughout registration week, a departmental representative, daily, 10-12. Room 208, Ec.

During the year:

Professor REEVES, *M, W, F*, at 10. Room 108, Ec.

Professor CRANE, *M, Th*, 1:45 to 2:15. Room 108, Ec.

Professor REED, *M, W, F*, at 9. Room 208, Ec.

Professor HAYDEN, *M, W, F*, at 9. Room 108, Ec.

Professor BROWN, *Th*, at 9, *W, F*, 1:30 to 2. Room 208, Ec.

Dr. HART, *M*, at 9, *Tu*, at 10, *Th*, at 2. Room 208, Ec.

Dr. CUNCANNON, *Th, F*, at 2. Room 208, Ec.

Mr. STRACHAN, *M*, at 2, *Tu*, at 10. Room 208, Ec.

Dr. KIRKPATRICK (second semester only), *M, W*, at 9. Room 208, Ec.

## SUMMARY OF ALL COURSES OFFERED IN THIS DEPARTMENT

## GOVERNMENT

## FIRST SEMESTER

1. American Government.
2. American Government.
3. Municipal Government.
7. British Government.
11. American Constitutional Law.
103. Comparative Government.
109. Municipal Administration.
111. Administrative Law.
113. Colonial Administration.
119. Seminary, Municipal Administration.
121. Bibliography and Methods of Research.
123. State Government.

## SECOND SEMESTER

1. American Government.
2. American Government.
4. Municipal Government.
8. European Governments.
16. National Politics.
104. Comparative Government.
110. Municipal Administration.
112. Municipal Finance.
114. Colonial Administration.
116. Charter and Ordinance Drafting.
120. Seminary, Municipal Administration.
122. Special Studies in American Constitutional Law.
124. Local Government.

## INTERNATIONAL LAW AND DIPLOMACY

## FIRST SEMESTER

- 5. International Law.
- 9. Diplomatic and Consular Functions.
- 15. World Politics.
- 115. Private International Law.
- 117. Seminary, International Law.

## SECOND SEMESTER

- 6. International Law.
- 28. American Diplomacy.
- 118. Seminary, International Law.

## POLITICAL THEORY

## FIRST SEMESTER

- 105. Political Theory: Ancient and Medieval.
- 107. Political Theory: Nineteenth Century.

## SECOND SEMESTER

- 22. Law and Politics.
- 24. Political Origins.
- 106. Political Theory: Modern.
- 108. Political Theory: Twentieth Century.

## COURSES OFFERED IN 1923-1924

## FIRST SEMESTER

*A. Exclusively for Undergraduates.*

- 1. American Government. Lectures, readings, recitations, and reports. *Three hours credit.* Professors REEVES and BROWN, Dr. HART, Dr. CUNCANNON, and Mr. STRACHAN.

This is a course designed exclusively for undergraduates as a preparation for citizenship. It is conducted by means of lectures and recitations, with supplementary readings extending throughout the year. The first semester is devoted to a study of National Government and Administration. In the second semester the work is divided between the study of State Governments and Administration and that of the American Party System. Throughout the course attention is centered rather upon the actual workings of government than upon the more mechanical side of administration.

*Courses 1 and 2, with a grade of C or higher, are prerequisites*

*for all other courses in Political Science.*

- 15. World Politics. Lectures, collateral reading, and reports. *Two or three hours credit.* Professor CRANE.

The aim of this course is to show the constant play of certain factors in the welter of world events, and thus to make it possible to grasp them as an intelligible whole. Current questions of world interest are used to illustrate the underlying forces at work. A third (credit) hour, which is optional, is devoted to a study of a selected topic involving specific questions of international policy. In recent years these topics have been Russia (1920), the Washington Conference (1921),

and Turkey (1922). If enrolling for the third hour, elect the course for three hours credit instead of two.  
Open only to juniors and seniors.

*B. For Graduates and Undergraduates.*

3. Municipal Government. Lectures, recitations, and reports. *Three hours credit.* Professor REED.

The commission and manager forms of city government are studied in the first semester along with other questions of a sociological, political, and legal character, organization, and framework of the municipality. The second semester is devoted to the activities of these governments—city planning, police, social welfare, public improvements, utilities, finance, and other functions. While in part historical and comparative, the courses deal mainly with American cities of the present time.

5. Public International Law. Lectures, recitations, and discussion. *Three hours credit.* Professor REEVES.

The work in international law is conducted principally by means of classroom discussion. The intention is not so much to drill in dogmatic statements of the law as to develop in the student the ability to analyze international situations for himself with some degree of clearness. The work comprises a general view of the elementary principles of the subject by text-book and informal lectures, the investigation and discussion of international incidents, and the consideration of the leading cases in international law, British and American.

7. British Government and Administration. Text, collateral, readings, and discussion, supplemented by lectures. *Three hours credit.* Professor HAYDEN.

In this course attention will be centered on those features of modern British government which have justified the large influence it has exercised upon governments both in America and in Europe. Parliament, its sovereignty, structure, and working, the Cabinet and responsible government, the Crown and the functions of the executive, the judiciary and the English conception of law, and the problems connected with the growth of the Empire, and the topics of prime consideration.

9. Diplomatic and Consular Functions. *Two hours credit.* Professor CRANE.

This course may be elected, only by special permission, by those who are preparing to enter the diplomatic or consular services. It is historical and comparative in content, with special reference to the duties and functions of American consular and diplomatic officers.

11. American Constitutional Law. Lectures and case-book discussion. *Three hours credit.* Professor BROWN.

This course is designed for those students of American History and Political Science who do not expect to pursue the professional study of law. While a portion of the work is done by means of lectures, most of it consists of classroom analysis and discussion of leading cases. Familiarity with American political history as represented by college or university work in the subject is required of all who elect this course.

24. Political Origins. Texts, collateral readings, and discussions, supplemented by lectures. *Two hours credit.* Dr. KIRKPATRICK.

A consideration of the contributions which anthropology and sociology make to political science. Brief notice will be taken of man's origin, racial characteristics, and distribution. More time will be given to the study of the beliefs and practices of primitive peoples and of their family and group life as they advance toward modern society and the state.

*C. Exclusively for Graduates.*

101. Journal Club in Political Science. Professor REEVES and members of the department of Political Science.

Reports of original work by faculty and students, discussion of current questions of government, administration, international and constitutional law, and examination of recent literature.

All graduate students in Political Science will attend the Journal Club meetings. *No credit given.*

103. Comparative Government. *Two hours credit.* Professor HAYDEN.

Intensive study will be given to selected political institutions of our own and foreign governments. Subjects such as the relation of upper and lower legislative chambers, national budget making, legislative control of national finances, legislative procedure, electoral laws, the relations of the executive and the legislative branches of government, local and central government will be investigated. Students desiring to elect this course should consult with Professor HAYDEN the first Thursday of the semester, at 2. Room 108, Ec.

107. Political Theory: Nineteenth Century. Readings and discussion. *Two hours credit.* Professor CRANE.

The historical development of political theories is studied in four consecutive semesters, covering two years' work, Courses 105, 106, 107, and 108. The courses may be taken independently of each other.

After a survey of the period under consideration, an exhaustive examination will be undertaken of some small portion of it. The purpose is to give thorough grounding in the fundamental principles, and at the same time to give training in the methodology of politics.

109. The Practice of Municipal Administration. Lectures, discussion, and reports. *Two hours credit.* Dr. UPSON.  
This is an advanced course dealing with the practical methods by which the purposes of municipal governments are accomplished. Attention is centered upon the character of municipal functions and the machinery by which they are made effective. The student will be given such advantages of field training as can be secured from the discussion of field problems, a first-hand acquaintance with field organization, and a limited amount of field work.  
Political Science 3 and 4 are prerequisites.
111. Administrative Law. *Two hours credit.* Professor REED.  
While this is primarily a course in the administrative law of the United States it will include an historical introduction and some comparison between American and European principles. Considerable emphasis will be placed on the relation of administrative law to state and local government.
113. Colonial Administration. *Two hours credit.* Professor HAYDEN.  
This course is both historical and comparative. The great historical colonial systems are examined with special reference to the problems connected with the American dependencies. This is followed by a study of the colonial policy of the United States and the organization and administration of the governments of Porto Rico and the Philippines.
115. Private International Law. *Two hours credit.* Professor REEVES.  
A study of jurisdiction, nationality, and domicile, as to which the divergent laws of various countries tend to produce international differences. The course will conclude with an examination of those efforts toward international coöperation in which are laid the foundations of international penal and administrative law.
117. Seminary in International Law. *Two hours credit.* Professor CRANE.  
The topic for investigation during the first semester of 1923-1924 will be the bases of international arbitral decisions.
119. Seminary in Municipal Problems. *Two hours credit.* Professor REED.  
Each member of the course will be assigned special subjects related to the work of the Bureau of Government for investigation and report under the direction of the instructor.  
Political Science 3 and 4 are prerequisites.
121. Bibliography and Methods of Research. *Two hours credit.* Professor BROWN.  
A survey of the bibliography of Political Science; studies in the use of public documents and other source materials; investigation and reports on special research problems.

123. State Government. *Two hours credit.* Dr. HART.

A study of the organization and functioning of state government, with particular reference to such problems as: the development of state constitutions and of state functions; legislative practice and procedure; judicial reform; administrative reorganization; and democratic control of administration.

SECOND SEMESTER

A. *Exclusively for Undergraduates.*

1. American Government. Lectures, readings, recitations, and reports. *Three hours credit.* Professor HAYDEN, Dr. CUNCANNON, and Mr. STRACHAN.

This course is a repetition of Political Science 1 offered in the first semester.

2. American Government. Lectures, readings, recitations, and reports. *Three hours credit.* Professors REEVES and BROWN, Dr. HART, Dr. CUNCANNON, and Mr. STRACHAN.

It is expected that those who have successfully pursued Course 1 will follow with Course 2. Course 1, with a grade of C or higher, is a prerequisite to Course 2. *Both, with a grade of C or higher, are prerequisites to all other courses in Political Science.*

16. National Politics. Lectures, collateral readings, and reports. *Two or three hours credit.* Professor BROWN.

This course presents a study of the more important current issues of national politics in the United States, and is given from the standpoint of the citizen who wishes a basis for rational opinion upon them. Such questions as national defense, foreign relations, the colonial policy of the United States, the national budget, government ownership, the organization of political parties, the relation of the government to capital and labor, the vital problems arising out of the existing industrial unrest will be considered. The work is conducted by means of lectures and required readings. A third hour may be elected, with credit (by permission) for quiz and discussion.

22. Law and Politics. *Three hours credit.* Professor CRANE.

This study of the principles of politics underlying our legal and political thought is designed as a general introduction to the field of political science and public law. A brief review of the various historical types both of political organization and of law is followed by a discussion of the relation of law and politics in the modern state and of the principal characteristics of each, with some of their more important consequences.

Open only to juniors and seniors.

*B. For Graduates and Undergraduates.*

4. Municipal Government. *Three hours credit.* Professor REED.  
This is a continuation of Course 3 and deals with the actual functions of city government rather than with its organization. Course 3 is a prerequisite.

6. Public International Law. Cases, assigned readings, discussion, and reports. *Three hours credit.* Professor REEVES.  
A continuation of Course 5, which is a prerequisite.

8. Continental European Governments. *Three hours credit.* Professor HAYDEN.

In this course attention is directed mainly to the governments of France, Italy, Switzerland, and Germany. Particular consideration will be given to the political ideals of the various nations as exemplified in their institutions and practice. Structural reorganization of the European governments, old and new, will receive special treatment.

- 22s. Problems and Politics of the Far East. *Two hours credit.* Professor KALAW.

- 28s. Government and Administration of the Philippine Islands. *Two hours credit.* Professor KALAW.

28. History of American Diplomacy, Lectures, readings, and reports. *Three hours credit.* Professor REEVES.

The development of American foreign policy, in part chronological, in part topical, based largely upon the more important treaties to which the United States has been a party. The principal topics considered are: territorial acquisitions, regulation of foreign commerce, neutral rights and duties, naturalization, immigration, protection of nationals and national interests, relations with Canada, Latin-America, and the Far East, and finally the policy of the United States during and since the World War, through the Conference of Washington, 1922.

American History equivalent to History 14 and 15 is a prerequisite to this course.

*C. Exclusively for Graduates.*

102. Journal Club in Political Science. Members of the department of Political Science.

This course is of the same nature and conducted in the same manner as Course 101. These courses are not repeated, the subject matter being always new.

All graduate students in Political Science will attend the Journal Club meetings. *No credit given.*



104. Comparative Government. *Two hours credit.* Professor HAYDEN.

This course is conducted in the same manner as Course 103, of which it is a continuation. It may, however, be elected independently, as the subjects chosen for investigation vary with each semester. Students wishing to elect this course should consult with Professor HAYDEN.

108. Political Theory: Twentieth Century. Readings and discussion. *Two hours credit.* Professor CRANE.

After a survey of the period under consideration, an exhaustive examination will be undertaken of some small portion of it. The purpose is to give thorough grounding in the fundamental principles, and at the same time to give training in the methodology, of politics.

110. The Practice of Municipal Administration. *Two hours credit.* Dr. UPSON.

A continuation of Course 109.

112. Administration of Municipal Finance. Lectures, readings, and reports. *Two hours credit.* Mr. RIGHTOR.

This course will deal from the standpoint of the administrator with the problems of finance in the precise form in which they confront our city authorities. The work will cover the budget and budget methods, the sources and collection of revenues, assessment, custody of money, appropriations and their proper objects, loans, sinking funds and serial bonds, purchasing, and audit.

Political Science 3 and 4 are prerequisites.

114. Colonial Administration. *Two hours credit.* Professor HAYDEN.  
A continuation of Course 113.

116. Studies in Charter and Ordinance Drafting. *Two hours credit.* Professor REED.

Individual studies, involving training in the technique of charter and ordinance drafting.

Political Science 3 and 4 are prerequisites.

118. Seminary in International Law. *Two hours credit.* Professor CRANE.

The topic for investigation during the second semester of 1923-1924 will be variation and innovation in international law.

120. Seminary in Municipal Problems. *Two hours credit.* Professor REED.

This is a continuation of Course 119. It may be taken before or after that course or alone.

Political Science 3 and 4 are prerequisites.

122. Special Studies in American Constitutional Law. *Two hours credit.* Professor BROWN.

An intensive study will be made of some particular field or phase of American constitutional law.

124. Local Government. *Two hours credit.* Dr. HART.

This course includes a historical and comparative study of local government, other than municipal, with particular reference to its special problems.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

35. Municipal Government. *Two hours credit.* Professor REED.  
 75. British Government and Administration. *Two hours credit.* Professor HAYDEN.  
 605. The Teaching of Civics. *Two hours credit.* Professor REED.  
 1135. Colonial Administration. *Two hours credit.* Professor HAYDEN.

#### PUBLIC SPEAKING

Students who desire practice in public speaking in addition to that offered in the classroom are advised to join a literary society and take part in the debates and oratorical contests provided by the Oratorical Association. For information regarding the contests of the Northern Oratorical League, the Central Debating League, the Midwest Debating League, and the Michigan-Ohio Debating League, the medals and testimonials offered, see Catalogue, or consult the instructors of this department.

CONSULTATION HOURS.—Consultation hours will be posted on the bulletin board in Room 302, M. H.

During registration week some member of the department may be consulted from 8 to 12 and from 1 to 5. Room 302, M. H.

Those preparing to teach Public Speaking should take at least twenty hours of work in the department, selected after consultation with the professors in charge. Only those who show marked ability in expressive reading and in public speaking will be encouraged to prepare for teaching.

Students who wish to acquire exceptional proficiency in public speaking should begin class work early in their college course.

#### FIRST SEMESTER

1. Principles of Expression. *Three hours credit.* Assistant Professors IMMEL and EICH, Mr. DENSMORE, Mr. CROCKER, Mr. BROWN, and Mr. GRAY.

*Important Notice:* Sections will be limited to 24 students. *Before selecting this course, each student must consult a member of the staff concerning a section.* Consultation in Room 302, M. H., at all hours during registration.

This course consists of (1) a study of the theory of expression by voice and action, (2) exercises for developing the voice and improving the stage presence, (3) practice in reading and speaking. The course seeks to give the student the fundamental principles necessary to self-criticism and an opportunity to apply these principles in practice. Orations are studied, memorized, and interpreted from the platform, and short original speeches are given, with special reference to distinct, direct, interesting speaking. Students with previous training may, by special permission, omit Course 1.

2. Extempore Speaking. *Two hours credit.* Assistant Professors IMMEL and EICH, Mr. DENSMORE, Mr. CROCKER, and Mr. FLEISCHMAN.

*Important Notice:* Sections will be limited to 18 students. *Before electing this course each student must consult a member of the staff concerning a section.* Consultation in Room 302, M. H., at all hours during registration.

Studies in public speaking and the delivery of short original speeches for special occasions. Emphasis is laid on the preparation of a thorough brief for each speech. Speeches are given from the platform without the use of notes. This course aims to give as much practice in self-expression as possible. Course 2 must be preceded by Course 1 or its equivalent.

3. Study of Great Orators. *Three hours credit.* Professor TRUEBLOOD and Mr. CROCKER.

*Before electing this course, students must consult a member of the staff for assignment to a section.*

Lectures on methods of public address and sources of power. Study of representative orators and their orations. Structure of the oration. Qualities of a good oration. The preparation and delivery of speeches. Those who desire at some time to enter the oratorical contests should take this course. Orations prepared for University contests will be accepted as part of the work.

Course 3 must be preceded by Courses 1 and 2 or their equivalent.

5. Debating. *Three hours credit.* Professor TRUEBLOOD and Assistant Professor IMMEL.

A third section will be formed, if necessary.

Study and application of the principles of argumentation. Preparation of briefs. Leading questions of the day studied and debated in class. Students take part in six debates. The aim

is to develop readiness in extempore speaking, to give freedom and ease on the platform, and to cultivate the logical processes of analysis and discrimination. All who expect to enter the debating contests or who expect to teach argumentation should take this course.

Sections will be limited to 24 students. *Before electing this course, students must consult one of the instructors in charge.* Course 5 must be preceded by Courses 1 and 2 or their equivalent.

6. Story Telling. *Two hours credit.* Assistant Professor IMMEL. A study of literature for children, with practice in story-telling before the class and before audiences of children. Intended for those especially interested in library work, playground supervision, and primary teaching.

Course 6 must be preceded by Course 1 or its equivalent, and may be elected only by special permission of the instructor.

7. Shakespearean Reading. *Three hours credit.* Assistant Professor EICH.

Sections limited. *Before electing the course, students should consult with the instructor.*

Critical study of two plays, a tragedy and a comedy. Analysis of character, plot, and incident. Expressional reading of principal scenes. Characters assigned to members of the class and scenes presented from the platform. Public presentation of plays twice each semester. Plays selected from the following: *Julius Caesar, Othello, The Merchant of Venice, Romeo and Juliet, The Tempest.*

Course 7 must be preceded by Course 1 or its equivalent.

- [7a. Shakespearean Reading. *Three hours credit.* Similar to Course 7. Assistant Professor EICH.

Plays to be selected from the following: *Coriolanus, King John, Henry VII, Anthony and Cleopatra, The Comedy of Errors, The Taming of the Shrew, Measure for Measure.*

Course 7a must be preceded by Course 1 or its equivalent.

Omitted in 1923-1924.]

9. Interpretive Reading. *Three hours credit.* Professor HOLLISTER and assistant. *Sections limited to 20 students. Before electing this course, each student must consult a member of the staff concerning a section. Consultation in Room 302, M. H., during registration.*

The appreciation and oral interpretation of standard literature. Practice in expressive reading from the book and in memorized interpretations from the platform. Lectures on the principles and technic of oral interpretation. Occasional lecture readings and recitals by the instructor and advanced students.

This course seeks to develop good oral interpretation not only for purposes of general culture and public entertainment but as an aid in the study and teaching of oral literature.

Open to those who have had Course 1 or its equivalent.

10. Advanced Public Speaking. *Three hours credit.* Professor TRUEBLOOD.

Examination of the Webster-Hayne, the Lincoln-Douglas, and other great debates. Study of famous platform addresses. Preparation and delivery by each student of an extended address. Participation in a public debating or oratorical contest during the semester or the presentation of an equivalent amount of practical speaking before public assemblies is required.

Open to students who have shown exceptional proficiency in speaking and reading. The class is limited to 16 persons.

*Before electing this course, students must consult the instructor in charge.*

Course 10 must be preceded by Courses 1, 2, and 3 or 5.

14. Play Production. *Two hours credit.* Professor HOLLISTER. Sections limited to 30 students. Other sections formed, if necessary.

An introduction to the elements and problems of play production. Tendencies in theatre art. Aims and organization of school and community dramatics. The selection of plays, the choice and instruction of casts, methods of blocking-out and interpreting, the construction and setting of the stage, business management. Lectures, reports, discussions. Demonstrations by use of a model stage and the presentation of scenes. This course is intended to give a general understanding of play production. Detailed practice in play presentation is offered in Courses 14*h* and 14*i*. Special emphasis upon the problems of acting is given in Course 14*a* in the second semester.

- 14*h*. Play Presentation. *Two hours credit.*

Sections limited to 20 students.

Practice in the presentation of plays. Open to those who have taken or are taking Course 14 or 14*a* and who have more than ordinary development in expressive reading, stage-craft, or other factors involved in the presentation of plays, and who receive permission from the instructor. Not to be taken during the same semester with Course 7, Shakespearean Reading.

- 14*d*. Play Direction. *Two hours credit.* Professor HOLLISTER.

Studies and practice in directing plays. For advanced students and graduates whose class records and general experience in dramatics indicate exceptional promise as directors of plays.

- [15. Theory of Expression. *Two hours credit.* Professor HOLLISTER.  
An investigation of one or more problems in oral expression  
Lectures, assigned readings, discussions, experiments. Each  
member of the class assigned a topic for investigation, report,  
and thesis. Open only to seniors and graduates who receive  
permission.  
Omitted in 1923-1924.]

SECOND SEMESTER

1. Principles of Expression. *Three hours credit.* Assistant Profes-  
sors IMMEL and EICH, Mr. DENSMORE, Mr. CROCKER, and Mr.  
JACKSON.

This is the same as Course 1, given in the first semester.

*Important Notice:* Sections limited to 24 students. *Before elect-  
ing this course, each student must consult a member of the  
staff concerning a section.* Consultation in Room 302, M. H.,  
at all hours during registration.

- [16. Speech Correction. *Two hours credit.* Professor HOLLISTER.  
A practical laboratory course in vocalization. Open to students  
who wish to correct their own vocal defects and weaknesses.  
Omitted in 1923-1924.]

2. Extempore Speaking. *Two hours credit.* This is the same as  
Course 2, given in the first semester. Assistant Professors  
IMMEL and EICH, Mr. DENSMORE, Mr. CROCKER, and Mr.  
FLEISCHMAN.

Course 2 must be preceded by Course 1 or its equivalent.

*Important Notice:* Sections limited to 18 students. *Before elect-  
ing this course, each student must consult a member of the  
staff concerning a section.* Consultation in Room 302, M. H.,  
at all hours during registration.

3. Study of Great Orators. *Three hours credit.* Professor TRUE-  
BLOOD and Mr. CROCKER.

This is the same as Course 3, given in the first semester.

Students who desire to enter the oratorical contests of the fol-  
lowing year are advised to take this course and prepare their  
orations.

*Before electing this course, students must consult a member of  
the staff for assignment to a section.*

Course 3 must be preceded by Courses 1 and 2 or their equiva-  
lent.

4. Shakespearean Reading. *Three hours credit.* Assistant Profes-  
sor EICH and Mr. \_\_\_\_\_.

Sections limited in size. *Students should consult the instructor  
before electing this course.*

Oral reading of two plays, a tragedy and a comedy. Characters assigned to members of the class and plays presented from the platform. Public presentation of plays twice each semester. The aim is to stimulate interest in Shakespeare by vocal interpretation and dramatic presentation. Plays selected from the following: *Macbeth*, *Richard III*, *Much Ado About Nothing*, *Henry IV* (Part I), *The Winter's Tale*, *A Midsummer Night's Dream*.

Course 4 must be preceded by Course 1 or its equivalent.

- [4a. Shakespearean Reading. Continuation of Course 4. *Three hours credit*. Assistant Professor ETCHE.

Plays to be selected from the following: *Hamlet*, *King Lear*, *Henry V*, *As You Like It*, *Twelfth Night*, *Cymbeline*.

Course 4a must be preceded by Course 1 or its equivalent.

Omitted in 1923-1924.]

5. Debating. *Three hours credit*. Professor TRUEBLOOD and Assistant Professor IMMEL.

Sections will be limited to 24 students. *Before electing the course, students must consult one of the instructors in charge.*

This is the same as Course 5, given in the first semester.

Course 5 must be preceded by Courses 1 and 2.

6. Story Telling. *Two hours credit*. Assistant Professor IMMEL. This is the same as Course 6, given in the first semester.

10. Advanced Public Speaking. *Three hours credit*. Professor TRUEBLOOD.

This is the same as Course 10, given in the first semester.

The class is limited to 16 persons. *Before electing this course, students must consult with the instructor in charge.*

Course 10 must be preceded by Courses 1, 2, and 3 or 5.

11. Oral Interpretation of Tennyson. *Three hours credit*. Professor HOLLISTER and assistant.

Sections limited to 20 students. *Before electing this course, each student must consult a member of the staff concerning a section.* Consultation in Room 302, M. H., during registration.

The appreciation and oral interpretation of selections from Tennyson's poems. Practice in expressive reading from the book and in memorized interpretations from the platform. Lectures on the principles and technic of the oral interpretation of poetry. Occasional lecture-readings and recitals by the instructor and advanced students. This course seeks to add to an intimate appreciation of poems the power to share this appreciation with others through the art of oral expression.

Open to those who have had Course 1 or its equivalent.

- [11a. Oral Interpretation of Browning. *Three hours credit*. Professor HOLLISTER and assistant.

Similar to Course 11.

Open to those who have had Course 1 or its equivalent.

Omitted in 1923-1924.]

- [13. Oral English. *Two hours credit*. Professor HOLLISTER.

A study of the aims, problems, and methods of oral English teaching. Open to advanced students and graduates who expect to teach Public Speaking or English or who are interested in the educational aspects of oral English study.

Omitted in 1923-1924.]

- 14a. Play Production. *Two hours credit*. Professor HOLLISTER.

Sections limited to 30 students. Other sections formed, if necessary.

Problems and principles of acting. Sources of acting power. Vocal and physical expression in acting. Grouping and harmonizing of characters. Costuming and make-up. Development of insight and character portrayal. Lectures, reports, discussions. Practical studies in connection with scenes and one-act plays presented from the stage. This course is intended to give a general understanding of acting art as a basis for critical appreciation and personal growth. Well-developed speech and platform habits are prerequisites for this course. Open to advanced students who receive permission from the instructor.

- 14g. Play Direction. *Two hours credit*. Professor HOLLISTER.

Studies and practice in directing plays. For advanced students and graduates whose class records and general experience in dramatics indicate exceptional promise as directors of plays.

- 14i. Play Presentation. *Two hours credit*. Professor HOLLISTER.

Sections limited to 20 students.

Practice in the presentation of plays. Open to those who have taken or are taking Course 14 or 14a and who have more than ordinary development in expressive reading, stage-craft, or other factors involved in the presentation of plays, and who receive permission from the instructor. Not to be taken during the same semester with Course 4, Shakespearean Reading.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

- 1a. Principles of Expression. *Two hours credit*. Assistant Professor EICH, Mr. DENSMORE, and Mr. FLEISCHMAN.
2. Extempore Speaking. *Two hours credit*. Mr. ———.
- 5a. Debating. *Two hours credit*. Mr. DENSMORE.



4. Shakespearean Reading. *Two hours credit.* Mr. ———.
- 9b. Interpretive Reading. *Two hours credit.* Assistant Professor EICH.
- 5b. Debate Teaching. *Two hours credit.* Mr. DENSMORE.
11. Oral Interpretation of Tennyson. *Two hours credit.* Assistant Professor EICH.
- 13b. Teachers' Course. *Two hours credit.* Mr. ———.
- 16c. Play Presentation. *Two hours credit.* Mr. FLEISCHMAN, Mr. EWBANK, and Mr. MILLER.
19. Play Direction. *Two hours credit.* Mr. FLEISCHMAN, Mr. EWBANK, and Mr. MILLER.
18. Stage Craft. *Two hours credit.* Professor HOLLISTER.

### RHETORIC AND JOURNALISM

(GROUP I; EXCEPTING COURSES 1 AND 2)

#### Rhetoric

Courses 1 and 2 are required of all first-year students, and must precede all other courses.

The courses offered in this department are of three principal kinds: (1) Courses intended primarily to give the student practice in the leading types of prose composition, including Courses 1, 2, 3, 4, 15, 18, and 20. (2) Courses intended primarily to familiarize the student with the fundamental principles of Rhetoric and Criticism, including Courses 5, 7, 8, 9, 10, 12, 13, 14, 16, 17, and 19. Courses 7, 8, 12, 19, 21, 23, and 24 combine advanced composition with the study of rhetorical and critical theory. (3) Courses for students who are preparing for newspaper work. A special circular regarding these courses may be obtained upon application to the Secretary of the University.

Courses 1 and 2 are introductory. They aim to promote clearness and correctness of expression through practice in the simpler kinds of composition. Courses 3 and 4, providing systematic practice in the four principal types of prose composition, are intended to follow Course 2, and are usually taken in the second year. Courses 5, 12, 13, 14, 15, 17, and 18, being still more advanced, belong naturally in the third or fourth year. Courses 16, 19, 20, and 21 should not be elected by students below the fourth year. In Courses 7 and 8 it is assumed that the student has already acquired considerable proficiency in composition and is prepared to give attention chiefly to the discussion of principles. Courses 23 and 24 are for those who show exceptional ability in writing or who aim to follow literary composition as a profession. Courses 9, 9a, 10, and 10a are only for students who are working for the higher degrees.

The advanced and graduate courses presuppose an acquaintance with the fundamental principles of rhetoric and a reasonable proficiency in the technic of prose. Composition, except where it is pursued with reference to the theory of teaching, is regarded as an undergraduate study.

Students in the Combined Literary and Law Curriculum should elect Courses 1, 2, 3, and 4, though Course 15 may, with permission of the instructor, be substituted for Course 4.

**REQUIREMENTS FOR CANDIDATES FOR THE TEACHING OF RHETORIC IN THE SCHOOLS.**—Students who wish to secure from this department recommendations to teach Rhetoric and English Composition, or who expect to apply for Teachers' Certificates in Rhetoric, should consult the department committee on recommendations, of which Professor RANKIN is chairman. This consultation should be held at the beginning of the junior year, or at the beginning of the senior year in the case of students entering the University at that time, in order that programs of study may be prepared and arrangements made for independent reading. Recommendations will be made only upon two grounds: first, upon evidence, indicated by grades and otherwise expressed judgment of instructors, that courses taken in the department and allied fields of study have been successfully completed; and secondly, upon evidence obtained in special conference with the committee on recommendations. This special conference will be for the purpose of discovering the range of information and special attainments of the student, and will be held in September or January of the senior year, the time depending upon the student's previous length of residence. Candidates for recommendations and for Teachers' Certificates will be required to take courses in Rhetoric covering at least twenty-two hours of credit, as follows: Courses 1 and 2 or their equivalent, Courses 3 (or 4), 7 (or 8), 12 (or 17), and eight hours more from the courses open to juniors or seniors. They will also be required to take hours in the department of English equal to the number required in Rhetoric, making a total, in the two departments, of forty-four hours. They will be expected to pursue work in philosophy, especially aesthetics, in history, and in foreign languages. At least one foreign language should be studied until considerable acquaintance is made with the literature in that language. The dates for conferences will be announced in the *Michigan Daily*.

**CONSULTATION HOURS.** — Each member of the department will have at least two consultation periods each week, hours for which will be posted in the Rhetoric Library.

#### FIRST SEMESTER

1. Composition and Rhetoric. *Three hours credit.* Mr. SCHENCK, Mr. LASHER, Mr. WICKER, Mr. JOHNSON, Mr. ADAMS, Mr. AB-  
BOT, Mr. SLUSSER, Mr. WELLS, Mr. GREENLAND, Mr. COFFEY,

Mr. BOWER, Mr. BOUWSMA, Mr. HORN, Mr. SMITH, Mr. BROWN, Mr. CONRAD, and Mr. FLETCHER.

All students electing Rhetoric 1 must apply to the Committee on Classification for assignment to sections.

2. Continuation of Course 1. Mr. JOHNSON and Mr. SLUSSER.  
All students electing Course 2 must apply to the Committee on Classification for assignment to sections.  
This course is the same as Course 2, given in the second semester. It is open only to students who have already completed Course 1, or have received credit for it. Students who need three hours to complete the requirement in Rhetoric for graduation are expected to take Course 2 in the first semester, as the sections announced for the second semester are not open to such students.
3. Advanced Composition and Rhetoric. Essays in description and narrative. *Three hours credit.* Assistant Professors MALLORY, COWDEN, SCOTT, WIER, EVERETT, and WALTER, Dr. CONKEY, and Mr. \_\_\_\_\_.  
All students electing Course 3 must apply to the Committee on Classification for assignment to sections.
- [7. Interpretations of Literature and Art. *Two hours credit.* Professor SCOTT.  
The course begins with a discussion of critical principles. Later these principles are applied in the appreciation and interpretation of specimens of literature and art.  
Open only to senior and graduate students who have permission.  
The course is conducted as a seminary.  
Omitted in 1923-1924.]
- [9. Seminary in Rhetoric and Criticism. *Two hours credit.* Professor SCOTT.  
The subjects of discussion vary from year to year. Among the problems to be investigated are the following: the origins of prose; the nature and origin of the leading types of discourse; the sociological basis of the principles of usage; the origin, development, and laws of the process of communication; prose rhythm.  
Open only to graduate students.  
Omitted in 1923-1924.]
- [9a. Special Problems in Rhetoric and Criticism. *Two hours credit.* Professor SCOTT.  
Limited to students who are working for the Doctor's degree.  
Omitted in 1923-1924.]
13. Theory and Practice of English Versification. *Three hours credit.* Assistant Professor WIER.

The student will analyze the structure of verse of important poets from Chaucer to Swinburne, examine the metres with reference to forms and legitimate substitutions, and attempt to differentiate between rhythms that are innate and those that have sprung from extraneous influence. Some discussion will also be given to modern "free verse." Frequent practice will be given in the writing of verse.

15. Argumentation. *Three hours credit.* Professor RANKIN.

A detailed study of the theory of argumentation, with practice in the preparation of briefs and the writing of arguments. The course is especially intended for students who are preparing for study of the law, but is open to any juniors and seniors who have had Courses 1, 2, 3, and 4.

17. Diction and Usage. *Three hours credit.* Assistant Professor COWDEN.

The work of this course is intended to accomplish two results: (1) the establishment of a method of dealing with problems in diction and usage; (2) the development of the student's sense for the right use of word, phrase, and idiom. Under the first heading various questionable expressions will be discussed with a view to determining their standing as parts of the English language. Under the second heading passages from standard prose and verse will be examined with a view to discovering whether each word or phrase used is the one best adapted to the author's purpose.

19. Studies in the Drama. *Three hours credit.* Professor RANKIN.

Lectures and study of modern plays. Special attention is given to comparison of the methods of present-day-writing with those of earlier times, in order to determine what are the permanent elements of dramatic technique.

Open only to senior and graduate students.

21. Studies in American Style. *Three hours credit.* Professor RANKIN.

The main purpose of this course is to ascertain what are the essential stylistic qualities of the chief writers of the English language in the United States. A study will be made of the language in its individual use and its use under the influence of foreign models. Special attention will be given to comparison with contemporary English writing from the time of Cotton Mather and Defoe to the present day. Colloquial as well as literary English will be considered. The course is conducted as a seminary.

Open only to graduate students, and seniors who secure permission.

- [23. Seminary in Advanced Composition. *Two hours credit.* Professor SCOTT.

This course is intended for a limited number of advanced students who, writing with facility and being in the habit of writing, desire personal criticism and direction. No work is assigned and no set program is followed, but each student is expected in the course of the semester to submit for revision a considerable number of manuscripts. In connection with the class discussions, there will be talks upon the essentials of English composition and the principles of criticism and revision. Open only to students who receive special permission. Omitted in 1923-1924.]

#### SECOND SEMESTER

1. Same as Course 1, given in the first semester. *Three hours credit.* Mr. JOHNSON and Mr. SLUSSER.  
Open only to students who enter at the beginning of the second semester or who have failed to receive credit in Course 1 in the first semester.
2. Composition and Rhetoric. *Three hours credit.*  
Continuation of Course 1. The hours and instructors are practically the same as those announced under Course 1, in the first semester. Students cannot change from one section to another at the beginning of the second semester without obtaining special permission.
4. Advanced Composition and Rhetoric. Essays in Exposition and Argument. *Three hours credit.* Section, hours, and rooms are practically as in Course 3.  
Students electing Course 4 as a continuation of Course 3 should remain in the same sections. All students electing Course 4 must enroll through the Committee on Classification. Course 3 is not a prerequisite of Course 4.
5. Rhetorical Analysis. *Three hours credit.* Professor RANKIN.  
Special attention is given to the minute analysis of structure. Open to juniors and seniors.
- [8. Prose Fiction. *Two hours credit.* Professor SCOTT.  
Studies in the structure and function of the leading types of prose fiction, including the short story.  
Open only to senior and graduate students who have permission. The course is conducted as a seminary.  
Omitted in 1923-1924.]
- [10. Seminary in Rhetoric and Criticism. *Two hours credit.* Professor SCOTT.  
Continuation of Course 9. Open only to graduate students.  
Omitted in 1923-1924.]

- [10a. Special Problems in Rhetoric and Criticism. *Two hours credit.* Professor SCOTT.  
Limited to students who are working for the Doctor's degree.  
Omitted in 1923-1924.]
12. Book Reviews. *Three hours credit.* Assistant Professors MAL-  
LORY and WIER.  
A study of principles, followed by critical discussions of selected  
works of contemporary literature. Open to juniors and sen-  
iors who have had three semesters of Rhetoric and two semes-  
ters of English Literature, or an equivalent satisfactory to the  
instructor.
14. Verse Form. *Three hours credit.* Dr. MORRIS.  
A critical study of verse form, the analysis of metrical and  
cadenced verse, and problems of reading and teaching poetry.  
Lectures, reading of theory, and writing.  
This course should be preceded by Course 13.
16. Modern English Prose. *Three hours credit.* Assistant Professor  
COWDEN.  
A study of the development of English prose style as exempli-  
fied in the writings of Sidney, Lyly, Bacon, Milton, Bunyan,  
Dryden, Defoe, Swift, Steele, Addison, Johnson, Lamb, De-  
Quincey, Carlyle, Macaulay, Emerson, Hawthorne, Ruskin,  
Arnold, Pater, and Stevenson. Written reports and classroom  
discussions.  
Open only to senior and graduate students.
18. Junior Composition. *Two hours credit.* Assistant Professor  
COWDEN.  
A course intended to give training in the writing and revision  
of compositions. The student will be expected to submit five  
or six manuscripts during the semester.  
Open only to juniors who have had Rhetoric 3 or 4, and limited  
to 20 students. All those wishing to take this course should  
consult with the instructor before making their elections.
- 19a. Studies in the Drama. *Three hours credit.* Professor RANKIN.  
Lectures and study of modern plays. A continuation of Course  
19, with opportunity not only for critical work but also for  
practical play-writing.  
Open only to senior and graduate students.
20. Short-Story Writing. *Three hours credit.* Professor RANKIN.  
Analytic studies in the technique of the short story, accompanied  
by constructive work in story writing.  
Open only to senior and graduate students.

- [24. Seminary in Advanced Composition. *Two hours credit.* Professor SCOTT.  
Continuation of Course 23. Open only to students who receive special permission.  
Omitted in 1923-1924.]
25. The Mechanics of the English Sentence. *Two hours credit.* Assistant Professor COWDEN.  
Studies in syntax. It is desirable that this course be preceded by Course 17.

SUMMER SESSION OF 1924

- (These or similar courses will be offered in 1925)
- 1 and 2. First Year Rhetoric. *Three or six hours credit.* Assistant Professors SCOTT and EVERETT.
35. Narrative Writing. *Two hours credit.* Assistant Professor MALLORY.
45. Exposition. *Two hours credit.* Assistant Professor WIER.
11. Studies in the Structure of the Modern Novel. *Two hours credit.* Assistant Professor WIER.
125. Book Reviews. *Two hours credit.* Assistant Professor MALLORY.
135. Theory and Practice of English Versification. *Two hours credit.* Assistant Professor WIER.
175. Diction and Usage. *Two hours credit.* Assistant Professor COWDEN.

*For Graduates Only.*

165. Modern English Prose. *Two hours credit.* Assistant Professor COWDEN.
195. Studies in the Drama. *Two hours credit.* Professor RANKIN.
205. Short-Story Writing. *Two hours credit.* Professor RANKIN.

*For Graduates Only.*

22. The Development of the Theory of Rhetoric. *Two hours credit.* Professor RANKIN.

**Journalism**

The courses in Journalism are open only to juniors and seniors or such other students as have completed Courses 1, 2, and 3 or 4 in Rhetoric. The work is designed for students who are following the curricula in Journalism. See Summary of Programs of Study, page 173.

Students who receive a grade of C or lower in *Elements of Journalism* (Course 31), or other elementary newspaper course, are not encouraged to continue the work in Journalism, and may elect further newspaper courses only with the permission of the instructors concerned.

*In the following courses the instruction will be supplemented by special lectures given by experienced newspaper workers and by the programs of the Students' Press Club.*

## FIRST SEMESTER

31. *Elements of Journalism.* Lectures, reports, and discussions. *Three hours credit.* Mr. BURROWS.  
A study of the nature of news and the methods of gathering and writing it. The aim of this course is to awaken a sense of news values, to indicate means of obtaining and verifying information, and to develop effective news writing.
37. *Feature Writing.* Lectures, reports, and written assignments. *Three hours credit.* Professor BRUMM.  
A study of the articles appearing in newspaper supplements and of other newspaper "features," with practice of a varied character in preparing contributions covering the miscellaneous interests of the press. Students in this course are encouraged to submit their articles for publication.
33. *The Country Newspaper.* Lectures, reports, and discussions. *Two hours credit.* Mr. BURROWS.  
A study of the problems of editing and publishing a country newspaper, including advertising, circulation, shop and office methods, as well as editorial practice. Emphasis will be placed upon the interpretation of the life of a small community.
35. *Written Criticism.* Lectures, discussions, and written assignments. *Three hours credit.* Professor BRUMM.  
A study of critical principles in their application to fiction, painting, music, and the drama, including photoplays, with practice in writing critical reviews. Attention will be given to the critic's problem in relation to the press. Students will be expected to read an assigned list of books and plays for critical review.
39. *The History and Principles of Journalism.* Reports and classroom discussions. *Three hours credit.* Mr. BURROWS.  
A study of the history of English and American journalism, followed by a comparative analysis of contemporary newspapers, including country and city papers, papers published in various parts of the United States, and foreign publications.
41. *Seminary in Newspaper Problems.* Reports and classroom discussions. *Three hours credit.* Professor BRUMM.



A study of newspaper problems and editorial practice. Special attention will be given to the sociological significance of the press.

43. Magazine Writing. Lectures, conferences, and assignments. *Three hours credit.* Mr. HAINES.

A study of the various types of magazine writing. At the beginning of the course each student will be encouraged to select some special field of interest, pursue researches within that field, and prepare articles based upon his study.

Open only to juniors and seniors who receive special permission.

#### SECOND SEMESTER

32. Newspaper Editing. Lectures, conferences, and assignments. *Three hours credit.* Mr. BURROWS.

A study of the technique of editing, with practice in copy-reading, rewriting, proof-reading, headline writing, and the handling of other editorial details. Attention will be given in this course to the methods employed by the various local and national news services and to the typography and "make-up" of the newspaper.

This course must be preceded by Journalism 31.

34. Newspaper Ethics. Lectures, assigned reading, and reports. *Three hours credit.* Mr. BURROWS.

An analysis of the function of the press in a modern democracy, with the aim of developing an alert and fearless attitude toward such questions as the influence of advertisers, sensationalism, propaganda, and fairness in political and industrial conflicts. Attention will be given to the law of the press, including copyright and libel.

36. Editorial Writing. Lectures, reports, and written assignments. *Three hours credit.* Professor BRUMM.

A critical study of the editorial. The aim of this course will be to determine the function of editorial writing, especially in relation to public opinion. Written exercises will include practice in preparing the various types of editorial articles and the use of reference material.

Open only to seniors who secure special permission.

38. Advanced News Writing. (A continuation of Course 31.) *Two hours credit.* Mr. BURROWS.

This course is designed to afford continued practice in the writing of news articles of increasing complexity. It should be preceded by Course 31.

- [40. Interpretative News Writing. Lectures, reports, and written assignments. *Three hours credit.* Professor BRUMM.

An analysis of special correspondence and of the personal element in the various types of news writing, with practice in the preparation of material for specialized articles.

This course must be preceded by Journalism 31.

Omitted in 1923-1924. Will be given in 1924-1925.]

42. Advertisement Writing. *Three hours credit.* Professor BRUMM. A study of advertising problems, with practice in the preparation of copy and "lay-outs."

Open only to seniors.

44. Magazine Writing. (A continuation of Course 43.) Lectures, conferences, and assignments. *Three hours credit.* Mr. HAINES. A study of the various types of magazine writing. At the beginning of the course, each student will be encouraged to select some special field of interest, pursue researches within that field, and prepare articles based upon his study.

Open only to juniors and seniors who receive permission.

#### SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

31. Elements of Journalism. *Two hours credit.* Mr. BURROWS.  
39s. The History and Principles of Journalism. *Two hours credit.* Mr. BURROWS.  
35s. Written Criticism. *Two hours credit.* Professor BRUMM.  
36s. Editorial Writing. *Two hours credit.* Professor BRUMM.

### ROMAN LAW AND JURISPRUDENCE

#### SPECIAL COURSES IN JURISPRUDENCE BY SIR PAUL VINOGRADOFF, F.B.A., CORPUS PROFESSOR JURIS- PRUDENCE IN THE UNIVERSITY OF OXFORD

During the year 1923-1924 special work in Jurisprudence is offered under the direction of Sir Paul Vinogradoff, F.B.A., Corpus Professor of Jurisprudence in the University of Oxford. To make this possible it will be necessary to change somewhat the order and content of the regular courses in Roman Law and Jurisprudence. Accordingly, during the year 1923-1924 the following courses in Roman Law, and Jurisprudence will be given. During the second semester the regular course in Roman Law, Course 2, will be offered.

During the first semester courses in Jurisprudence will be offered as follows:

- (1.) A three-hour course, consisting of twelve lectures, to be delivered by Sir Paul Vinogradoff, and three recitation hours per

week during the remainder of the semester to be conducted by the regular instructor in Jurisprudence. This course will be open to students in the Law School only.

(2.) A one-hour course, consisting of the lectures by Sir Paul Vinogradoff, referred to in the preceding paragraph, and assigned readings. This course will be open to advanced students in History and Political Science as well as to students in the Law School who do not elect Course (1).

(3.) A seminar under the direction of Sir Paul Vinogradoff, for which no credit will be given and to which admission shall be gained by special permission only.

Professor Vinogradoff's lectures will deal with such topics as:

- (1.) Aims and Methods of Jurisprudence.
- (2.) Morality and Law.
- (3.) Legal Forms and Coöperation.
- (4.) Juridical Personality.
- (5.) The State, Its Social and Judicial Nature.
- (6.) Law and the State.
- (7.) The Law of Nature.
- (8.) Rights.
- (9.) The Rights of Man.
- (10.) Rights of the Citizen.
- (11.) Rights of Property and Possession.
- (12.) Convention and Compensation.

2. The Elements of Roman and Comparative Law. Lectures and recitations. *Three hours a week*, second semester. Professor DRAKE.

An outline of the fundamental principles of Roman and Comparative Law as given in Pound's *Readings in Roman Law*.

## ROMANCE LANGUAGES AND LITERATURES

### (GROUP I)

#### French

Students especially interested in language study are advised to elect two foreign languages in the freshman year. Two new languages, however, should not be begun at the same time. See page 172.

Courses 1, 2, 3, and must precede all others. Students in these courses are expected to remain in the same section throughout the year, and should choose their section accordingly. Students intending to enter upon the study of French at any point of their course will find it greatly to their advantage to do so in their first year.

Students who have had one year of French in preparation for the University should elect Course 2; those who have had two years

should elect Course 3; and those who have had three years should elect Course 4.

Students desiring to become teachers of French should consult Professor CANFIELD as soon as possible. Only students who have marked linguistic ability are encouraged to prepare themselves for teaching, and no student who has not been more than ordinarily successful in his work in the department, and acquired more than an average proficiency, will be recommended.

Members of the staff may be consulted concerning the arrangement of their work, during the registration period, as follows:

Professor CANFIELD, from 9 to 12, in Room 104, S. W.

Professor EFFINGER, in the Dean's office.

Professor WAGNER, from 10 to 12, in Room 203, S. W.

Professor TALAMON, from 10 to 12, in Room 300, S. W.

Assistant Professor BURSLEY, in the office of the Classification Committee.

Assistant Professor ROVILLAIN, from 10 to 12, in Room 306, S.W.

Assistant Professor DEL TORO, from 10 to 12, in Room 306, S.W.

Assistant Professor CLAVEL, from 10 to 12, in Room 106, S.W.

#### FIRST SEMESTER

##### *Elementary Courses.*

1. Beginning Course. Grammar and easy reading, with practice in speaking. *Four hours credit.* Mr. PARGMENT, Mr. BEMENT, Mr. ANTONIO, Mr. DEFILIPPIS, Mr. FINNEY, Mr. HERMAN, Mr. PURNELL, and Dr. STORER.

This course is open only to freshmen and sophomores. Juniors and seniors enrolling in these sections must elect as Course 101 and will receive but *three hours credit.*

No credit toward graduation is counted for this course until Course 2 is satisfactorily completed.

- 1a. Elementary French for Juniors and Seniors. The main stress in this course will be on the acquisition of the ability to read French rapidly and accurately. *Four hours credit.* Mr. HERMAN and Mr. FINNEY.

No credit toward graduation is counted for this course until Course 2a is satisfactorily completed.

2. Elementary French. Continuation of Course 1. For those who have had Course 1 or one year of French in the high school. *Four hours credit.* Mr. ANTONIO, Mr. BEMENT, Mr. DEFILIPPIS, Mr. FINNEY, Mr. HERMAN, Mr. MICHAUD, Mr. PARGMENT, Mr. PURNELL, and Dr. STORER.
3. Elementary French of the Second Year. Modern prose and plays, with practice in speaking and writing. *Four hours credit.*

- 3x. Students who have completed Course 1s in the Summer Session with a grade of A or B may enroll in any of the sections of Course 3, electing it as 3x, and receive *five hours credit*, upon doing extra reading to be assigned by the instructor and passing an examination on it.
4. Modern Prose and Plays. For those who have taken Course 3 or three years of French in the high school. *Four hours credit*. Assistant Professor BURSLEY, Mr. BEMENT, Mr. BROWN, Dr. CLOPPET, Mr. DOW, Mr. FINNEY, Mr. HERMAN, Mr. HOOTKINS, Mr. MUYSKENS, Mr. PARGMENT, and Dr. STORER.

*Intermediate Courses.*

5. Introduction to French Literature. Representative authors of various periods. *Three hours credit*. Professor TALAMON, Assistant Professors ROVILLAIN and REINHARD, Mr. PATTERSON, Dr. CLOPPET, and Mr. DOW.

This course is a prerequisite to all advanced courses in French literature.

Sections I, III, and VI will be conducted in French.

The size of sections in Course 5 is strictly limited.

6. Introduction to French Literature. Representative authors of the eighteenth and nineteenth centuries. *Three hours credit*. Professor TALAMON, Assistant Professors CLAVEL, ROVILLAIN, and REINHARD, Dr. CLOPPET, and Mr. PATTERSON.

This course must have been preceded by Course 5 or an equivalent. Courses 5 and 6 are a prerequisite to all advanced courses in French literature.

The size of sections in Course 6 is strictly limited. Enrollment cards must be obtained in the office of the department of Romance Languages, Room 104, S. W.

7. Composition. May be taken at the same time with Course 5, but *not before it*. *Two hours credit*. Assistant Professor BURSLEY, Mr. BEMENT, Mr. DESMARAIS, and Mr. PARGMENT.

The size of sections in Course 7 is strictly limited. Enrollment cards for this course must be obtained in the office of the department of Romance Languages, Room 104, S. W.

8. Composition. May be taken at the same time with Course 6, but *not before it*. *Two hours credit*. Assistant Professor BURSLEY, Mr. BEMENT, Mr. DESMARAIS, Mr. MUYSKENS, Mr. PARGMENT, and Mr. PATTERSON.

The size of sections in Course 8 is strictly limited. Enrollment cards must be obtained in the office of the department of Romance Languages, Room 104, S. W.

11. Outlines of the History of French Literature. *Three hours credit.* Professor CANFIELD.

This course is intended especially for students who have taken Courses 5 and 6 in their freshman or sophomore years and have time to develop their general knowledge of French literature. The course will be conducted in French.

- 13a. Conversation. *One hour credit.* Open to students who have had no course in conversation. Mr. PARGMENT, Mr. PATTERSON, Mr. BROWN, Mr. BEMENT, and Mr. DOW.
- 13b. Conversation. *One hour credit.* Open to students who have taken Course 13a or have had the equivalent of one course in conversation. Mr. PARGMENT and Mr. PATTERSON.
- 13c. Conversation. *One hour credit.* Open to students who have taken Course 13b or have had the equivalent of two courses in conversation. Dr. CLOPPET.
- 13d. Conversation. *One hour credit.* Open to students who have taken Course 13c or have had the equivalent of three courses in conversation. Dr. CLOPPET.

*Advanced Courses.*

15. Advanced French Composition. Practice in writing idiomatic French. *Two hours credit.* Assistant Professor CLAVEL.  
Open to students who have taken Course 8 or the equivalent.
16. Advanced French Composition. Practice in writing idiomatic French. *Two hours credit.* Professor TALAMON.  
Open to students who have taken Course 15 or the equivalent.
17. History of the Novel in France. *Two hours credit.* Professor EFFINGER.

This course will trace the growth of the novel as a form of literature and its various transformations. A number of representative masterpieces of different periods will be read, and both their technical qualities and their relation to the social and intellectual environments will be studied. Particular attention will be given to the preparation and development of realism in the nineteenth century.

19. Contemporary France. French government and political institutions; political parties; social and religious conditions; industries; literature, art, science, and education. *Two hours credit.* Assistant Professor ROVILLAIN.

This course is intended to give such a knowledge of the French people of today as will enable one to interpret intelligently the events involving French reported in the current news of the world. Recommended specially for students of journalism and for those preparing to teach French.

- [21. Poetry of the Nineteenth Century. Lectures, reading, and discussions. *Three hours credit.* Professor CANFIELD.  
This course deals with the main aspects of poetry in France from the beginnings of Romanticism to the present time. The chief and representative poets are studied in connection with the currents of thought of the time.  
Omitted in 1923-1924.]
23. Corneille and Racine. *Three hours credit.* Professor TALAMON.
- [25. French Society and Culture in the Sixteenth, Seventeenth, and Eighteenth Centuries. A survey of the principal factors that contributed to the formation, development, and decay of the classical ideal of French literature. *Three hours credit.* Professor THIEME.  
Omitted in 1923-1924.]
- [25a. French Criticism. The main representatives of literary criticism in France will be studied in such a way as to form a basis for history of French criticism. *Three hours credit.* Professor THIEME.  
Omitted in 1923-1924.]
- [25b. The Literature of the Sixteenth Century. With Montaigne and Rabelais as center of attention, the whole movement of the Renaissance as reflected in letters will be studied. *Three hours credit.* Professor THIEME.  
Omitted in 1923-1924.]
- 27a. French Grammar. A systematic review. *Two hours credit.* Mr. HOOTKINS.  
This course is intended specially for those intending to teach French who have already taken Courses 7 and 8 and should accompany Course 15. It aims to develop and systematize the student's knowledge of the forms and particularly of the syntax of French.
- 28a. French Reading for students of Biology. *One hour credit.* Professor LEE.  
Elect as Zoölogy, Course 28, and Botany, Course 29.
- 39 French Pronunciation and Diction. Practice in reading, speaking, and reciting, with a view to acquiring an accurate command of individual French sounds and a correct "accent." *One hour credit.* Professor TALAMON.  
Open only to students who are preparing themselves to teach. The number to be admitted is strictly limited, and the instructor's permission must be obtained before the course is elected.

47. French Classicism in England. Lectures, assigned reading, reports, and discussion. *Two hours credit.* Assistant Professor CLAVEL.

This course is intended as much for students specially interested in English as for those specializing in French, but a good reading knowledge of French and such an acquaintance with the classical movement in France as is given in Course 5 are prerequisites.

71. French Literature from the Beginnings to the *Pléiade*. Lectures, reading, and reports. *Three hours credit.* Professor CANFIELD.

This course aims to afford a general survey of the literature of the Middle Ages in France, its sources, its use of the materials, forms, and traditions derived from classical antiquity, its contribution to the literature of other countries, the ideas and sentiments that it embodies, and the ideals that inspired it.

This course may be elected as 71a by seniors and graduate students specializing in English, but with only *two hours credit*. The range and amount of their reading will necessarily be more limited.

- 101a. Practical Phonetics. *Three hours credit.* Professor MEADER and Mr. MUYSKENS.

See, under General Linguistics, the more detailed description of this course. Especially important for those preparing to teach French.

*Primarily for Graduates.*

51. Seminary in French Literature. *Two hours credit.* Assistant Professor REINHARD.

The work will consist in special studies connected with the history of French literature. Subjects will be chosen for investigation according to the needs and preparation of students.

- [49. Old Provençal. Outline of the grammar, with readings. *Two hours credit.* Professor ADAMS.  
Omitted in 1923-1924.]

53. Historical French Grammar, I. Phonology. Lectures, with illustrative Old French readings. *Two hours credit.* Professor ADAMS.

- [55. Introduction to Old French Literature. Reading of selected texts and lectures. *Two hours credit.* Professor ADAMS.  
Omitted in 1923-1924.]

- [35. French Versification. A critical and historical study of French verse structure from its origin to the present. *Two hours credit.* Professor THIEME.  
Omitted in 1923-1924.]



37. Journal Club. Review of results of current research in the field of Romance languages and literatures, by the instructors of the department and advanced students. Meets monthly.
57. History of Ideas in France. *Two hours credit.* Assistant Professor ROVILLAIN.  
A study of the great intellectual currents and their influence in determining the main phases of French literature. Part I: The formative period; the age of the Renaissance; the classical age.
- [57a. French Literature of the Eighteenth Century: The Literature of Ideas, from Bayle to Condorcet. *Two hours credit.* Assistant Professor ROVILLAIN.  
The reaction against classicism; the "philosophers"; the theory of progress and its importance; the encyclopedists and their work; Rousseau and his conflicting theories; his influence on French and European thought; his influence on French literature.  
Omitted in 1923-1924.]
63. La Littérature Française par l'Explication de Textes. *Two hours credit.* Assistant Professor CLAVEL.  
This course aims at:
1. Giving advanced and graduate students a good command of French literary and critical vocabulary.
  2. Training them in the method of the "explication de textes."
  3. Making them well acquainted with the most famous and characteristic pages in French literature, from the beginnings to the present day.
- [65. Seminary in the Sixteenth Century. *Two hours credit.* Professor THIEME.  
Omitted in 1923-1924.]

#### SECOND SEMESTER

##### *Elementary Courses.*

1. Beginning French. Grammar and easy reading, with practice in speaking. *Four hours credit.*  
No credit toward graduation is counted for this course until Course 2 is satisfactorily completed.
2. Elementary Course continued. Reading of modern prose and plays, with practice in speaking and composition. *Four hours credit.* The same instructors as in Course 1, the first semester.  
This course is open only to freshmen and sophomores. Juniors and seniors enrolling in these sections must elect as Course 102, and will receive but *three hours credit.*

- 2a. Elementary French for Juniors and Seniors. Continuation of Course 1a. *Four hours credit.* Mr. HERMAN and Mr. FINNEY.
3. Elementary French. Continuation of Course 2; also for students who have had two years of French in the high school. *Four hours credit.* The same instructors as in Course 2 the first semester.
4. Elementary French of the Second Year. Modern prose and plays, with practice in speaking and writing. *Four hours credit.* The same instructors as in Course 3 the first semester. The sections of the first semester will be continued at the same hours. Students who find it necessary to change from one section to another, and those who were not taking French 3 in the first semester, must enroll through the Classification Committee.
- 4x. Students entitled to elect 3x in the first semester may, after completing that course, elect 4x under the same conditions.

*Intermediate Courses.*

5. Introduction to French Literature. Same as Course 5 of the first semester. *Three hours credit.* Assistant Professor ROVILLAIN, Dr. CLOPPET, Mr. PATTERSON, and Mr. DOW.
6. Introduction to French Literature. Continuation of Course 5. *Three hours credit.* Professor TALAMON, Assistant Professors ROVILLAIN, CLAVEL, and REINHARD, Dr. CLOPPET, and Mr. PATTERSON.

This course is a prerequisite to all advanced courses in French literature.

Sections I, III, and VI will be conducted in French.

The size of sections in Course 6 is strictly limited. As far as possible, students should remain in the same section as in Course 5, and may get enrollment cards in advance of other students. Enrollment cards must be obtained in the office of the department of Romance Languages, Room 104, S. W.

7. Composition. May be taken at the same time with Course 5, but *not before it.* *Two hours credit.* Mr. BEMENT and Mr. BROWN.

The size of sections in Course 7 is strictly limited. Enrollment cards must be obtained in the office of the department of Romance Languages, Room 104, S. W.

8. Composition. Must have been preceded by Course 7 or the equivalent. May be taken at the same time with Course 6, but *not before it.* *Two hours credit.* The same instructors as in Course 7 the first semester.

The size of sections in Course 8 is strictly limited. Enrollment cards must be obtained in the office of the department of Romance Languages, Room 104, S. W.

12. Outlines of the History of French Literature. Continuation of Course 11. *Three hours credit.* Professor CANFIELD.

- 13a. Conversation. *One hour credit.* Open to students who have had no course in conversation. Mr. PARGMENT, Mr. PATTERSON, Mr. DES MARAIS, and Mr. Dow.

- 13b. Conversation. *One hour credit.* Open to students who have taken Course 13a or have had the equivalent of one course in conversation. Mr. PARGMENT and Mr. PATTERSON.

- 13c. Conversation. *One hour credit.* Open to students who have taken Course 13b or have had the equivalent of two courses in conversation. Dr. CLOPPET.

- 13d. Conversation. Open to students who have taken Course 13c. *One hour credit.* Dr. CLOPPET.

*Advanced Courses.*

15. Advanced French Composition. Practice in writing idiomatic French. *Two hours credit.* Assistant Professor CLAVEL.

Course 15 must have been preceded by Course 8 or the equivalent.

16. Advanced French Conversation. Practice in writing idiomatic French. *Two hours credit.* Professor TALAMON.

Course 16 must have been preceded by Course 15 or the equivalent.

18. The Dramatic Literature of the Eighteenth and Nineteenth Centuries. *Two hours credit.* Professor EFFINGER.

A study of the dramatic work of LeSage, Marivaux, Crébillon, Voltaire, Diderot, Nivelle de la Chaussée, Beaumarchais; the Melodramas of Pixérécourt; the Romantic drama; Scribe; the classical reaction; Dumas fils, Augier, Henri Becque, and the modern school. Lectures in French, with assigned readings and reports.

20. Contemporary France. Continuation of Course 19. *Two hours credit.* Assistant Professor ROVILLAIN.

- [22. The Poetry of the Nineteenth Century. Continuation of Course 21. *Three hours credit.* Professor CANFIELD.

Omitted in 1923-1924.]

24. Molière. *Three hours credit.* Assistant Professor TALAMON.

- [26. Continuation of Course 25. French Society and Culture in the Sixteenth, Seventeenth, and Eighteenth Centuries. Professor THIEME.  
Omitted in 1923-1924.]
- [26a. French Criticism. Continuation of Course 26. *Three hours credit.* Professor THIEME.  
Omitted in 1923-1924.]
- 28b. French Reading for Students of Chemistry and Physics. *Two hours credit.* Professor LEE.  
See Chemistry 20a and Physics 38.
39. French Pronunciation and Diction. *One hour credit.* Professor TALAMON.  
See the description of the course in the first semester. Elections limited in the same way as in the first semester. It may not be taken a second time.
48. Rousseau and England. Lectures, assigned reading, reports, and discussions. *Two hours credit.* Assistant Professor CLAVEL.
72. French Literature from the Beginnings to the Pléiade. *Three hours credit.* Professor CANFIELD.  
*Primarily for Graduates.*
52. Seminary in French Literature. Continuation of Course 51. *Two hours credit.* Assistant Professor REINHARD.
- [50. Provençal. Continuation of Course 49. *Two hours credit.* Professor ADAMS.  
Omitted in 1923-1924.]
54. Historical French Grammar, II. Morphology. Lectures and readings. *Two hours credit.* Professor ADAMS.
- [56. Introduction to Old French Literature. Continuation of Course 55. *Two hours credit.* Professor ADAMS.  
Omitted in 1923-1924.]
58. History of Ideas in France. Continuation of Course 57. Part II. The Age of the Revolution; the Modern Age. *Two hours credit.* Assistant Professor ROVILLAIN.
38. Journal Club. Review of results of current research in the field of Romance languages and literatures, and original papers, by the instructors of the department and advanced students. Meets monthly.
64. La Littérature Française par l'Explication de Textes. Continuation of Course 63. *Two hours credit.* Assistant Professor CLAYEL.

74. The French Epic. The general consideration of the *king cycle* of the *chansons de geste*. *Two hours credit*. Mr. GALLAND.
- [66. Seminary in the Sixteenth Century. *Two hours credit*. Professor THIEME.  
Omitted in 1923-1924.]

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

15. Beginners' Course. *Six hours credit*. Mr. BRITTON.
1. Beginners' Course. *Four hours credit*. Professor LEE.
2. French of the Second Semester. *Four hours credit*. Mr. BEMENT.
3. Second Year French. *Four hours credit*. Mr. MUYSKENS and Mr. HOOTKINS.
4. Modern Prose. *Four hours credit*. Assistant Professor REINHARD.
- 5b. Introduction to French Literature. *Two hours credit*. Mr. DES MARAIS.
7. Composition. *Two hours credit*. Mr. HOOTKINS.
- 13s. Conversation. *Four hours credit*. Dr. CLOPPET.
15. Advanced Composition. *Two hours credit*. Mr. DES MARAIS.
- 19s. Advanced Conversation. *Two hours credit*. Assistant Professor ROVILLAIN.
42. Teachers' Course. *Two hours credit*. Professor CANFIELD.
45. French Phonetics and Pronunciation. *Two hours credit*. Mr. MUYSKENS.
- For Graduates.*
- 57a. French Literature of the Eighteenth Century. *Two hours credit*. Assistant Professor ROVILLAIN.
61. Seminary in French Literature. *Two hours credit*. Professor CANFIELD.
- 65b. French Lyric Poetry. *Two hours credit*. Professor CANFIELD.

Italian

FIRST SEMESTER

1. Italian Grammar. Easy Prose. *Three hours credit.* Mr. DE FILIPPIS.  
No credit toward graduation is counted for this course until Course 2 is satisfactorily completed.
3. Italian Readings. Modern Italian Prose Writers. *Three hours credit.* Mr. DE FILIPPIS.
5. Dante. *La Vita Nuova* and *La Divina Commedia*. Lectures and recitations. *Three hours credit.* Assistant Professor REINHARD.

SECOND SEMESTER

2. Continuation of Course 1. Modern readings. *Three hours credit.* Mr. DE FILIPPIS.
4. Italian Readings continued. The Literature of the Italian Renaissance. *Three hours credit.* Assistant Professor REINHARD.
6. Dante, *La Divina Commedia*. Continuation of Course 3. Lectures and recitations. *Three hours credit.* Assistant Professor REINHARD.

Spanish

Students especially interested in the study of language are advised to elect two foreign languages in the freshman year. Two new languages, however, should not be begun at the same time. See page 172.

Courses 1, 2, 3, and 4 must precede all others. Students whose purpose in continuing Spanish is to acquire greater fluency in speaking and writing should then take Courses 7, 8, 19, 20, and 21 or 15. Of the courses in Spanish Literature 13 and 14 should come first, if possible.

Students who enter the University with only one year of Spanish should continue with Course 2.

Prospective teachers of Spanish should consult with Professor WAGNER before November 1 concerning the requirements for the departmental recommendation in this subject. This applies to students enrolled in the School of Education.

FIRST SEMESTER

*Elementary Courses.*

1. Elementary Course. Grammar, oral work, and reading. *Four hours credit.* Mr. DE FILIPPIS, Mr. EDDY, Mr. GARCIA, Mr. HERERRA, Mr. LUZUNARIS, Mr. PERALTA, and Dr. STORER.  
No credit toward graduation is counted for this course until Course 2 is satisfactorily completed.

2. Elementary Course. Continuation of Course 1. *Four hours credit.* Mr. BALLOU, Mr. EDDY, Mr. GARCIA, and Mr. PERALTA.
3. Second Year. Composition, conversation, and reading of selected texts. *Four hours credit.* Assistant Professor BURSLEY, Mr. BALLOU, Mr. EDDY, Mr. HOOTKINS, Mr. MICHAUD, and Mr. WILLEY.
4. Second Year. Continuation of Course 3. *Four hours credit.* Mr. MERCADO and Mr. BALLOU.

*Intermediate Courses.*

7. Advanced Spanish Composition. *Two hours credit.* Mr. WILLEY and Mr. MERCADO.  
Open to students who have completed Course 4 or an equivalent.
8. Advanced Composition. Continuation of Course 7. Open also to students who may have had an equivalent of Course 7. *Two hours credit.* Mr. WILLEY.
13. Introduction to Spanish Literature. The Nineteenth Century. *Three hours credit.* Professor WAGNER and Mr. ———.  
Open to students who have completed Course 4 or the equivalent.
19. Spanish-American Life and Literature. Lectures, assigned readings, reports, and quizzes. Conducted in Spanish. *Three hours credit.* Assistant Professor DEL TORO.  
This course is designed to increase the student's practical knowledge of Spanish and at the same time to give him general information regarding the Spanish countries, their literature, life, and customs, and their relations to ourselves.  
Open to students who have had Spanish 3 and 4 or the equivalent.

*Advanced Courses.*

5. Cervantes and His Contemporaries. *Three hours credit.* Professor WAGNER.  
An introduction to Spanish life and literature of the Golden Age.  
Open to juniors and seniors who have completed Course 4 or the equivalent.
9. The Drama of the Seventeenth Century. *Three hours credit.* Professor WAGNER.  
Open to students who have completed Courses 5 and 6 or an equivalent.
21. Advanced Conversation. *Two hours credit.* Mr. MERCADO.  
Open only to students who have had Course 20 or the equivalent.  
Primarily for prospective teachers, and may be followed in the second semester by Course 17.

- [23. Modern Spanish Literature. Lectures, reports, and discussions, covering the Spanish drama, poetry, and novel of the nineteenth and twentieth centuries. *Three hours credit.* Professor WAGNER.

Open to students who have completed Courses 5 and 6 or an equivalent.

Omitted in 1923-1924.]

29. The Contemporary Drama of Spain. Lectures, readings, and reports. *Three hours credit.* Assistant Professor DEL TORO. A study of the works of Benavente, Linares Rivas, Marquina, and Martinez Sierra.

Prerequisites: Courses 5 and 6 or 13 and 14.

*Graduate Courses.*

- [15. Spanish Historical Grammar and Introduction to Old Spanish Literature. *Two hours credit.* Professor WAGNER.

Omitted in 1923-1924.]

51. Seminary in Spanish Literature. *Two hours credit.* Professor WAGNER.

For 1923-1924 the work will be concerned with the Spanish Classical Drama.

SECOND SEMESTER

*Elementary Courses.*

1. Elementary Course. Grammar, reading, and oral work. *Four hours credit.* Mr. BALLOU, Mr. EDDY, Mr. GARCIA, and Mr. PERALTA.

No credit toward graduation is counted for this course until Course 8 is satisfactorily completed.

2. Elementary Course. Continuation of Course 1. Reading of modern prose, with practice in speaking and writing. *Four hours credit.* The same instructors as in Course 1 the first semester.

3. Continuation of Course 2. *Four hours credit.* Mr. BALLOU and Mr. MERCADO.

4. Second Year. Continuation of Course 3. *Four hours credit.* The same instructors as in Course 3 the first semester.

*Intermediate Courses.*

5. Continuation of Spanish 4. Open to students who have had Course 4 or the equivalent. *Four hours credit.* Mr. HOOTKINS.

7. Advanced Composition. Open to students who have completed Course 4 or the equivalent. *Two hours credit.* Mr. WILLEY.



8. Advanced Composition. Continuation of Course 7. *Two hours credit.* Mr. MERCADO and Mr. WILLEY.
14. Introduction to Spanish Literature. The Sixteenth and Seventeenth Centuries. *Three hours credit.* Professor WAGNER.  
Open to students who have completed Course 13 or the equivalent.
20. Spanish and Spanish-American Life and Literature. Continuation of Course 19. *Three hours credit.* Assistant Professor DEL TORO.  
Sections and instructors as announced for the first semester.

*Advanced Courses.*

6. Cervantes and His Contemporaries. Continuation of Course 5. *Three hours credit.* Professor WAGNER.
- [12. The Early Spanish Novel. Continuation of Course 11. *Two hours credit.* Professor WAGNER.  
Omitted in 1923-1924.]
17. Teachers' Course. *Two hours credit.* Professor WAGNER.  
An attempt to contribute toward the practical preparation of the teacher. Lectures, readings, and problems. Discussion of values and aims, methods old and new, text-books, curricula, history of the Spanish language and elementary Spanish phonetics.
- [24. Modern Spanish Literature. Continuation of Course 23 *Three hours credit.* Professor WAGNER.  
Omitted in 1923-1924.]
25. The Modern Spanish Drama. Lectures, reports, and discussions. *Three hours credit.* Assistant Professor BURSLEY.  
This course covers the Spanish drama of the nineteenth and twentieth centuries.  
Prerequisites: Courses 5 and 6 or 13 and 14.
- [27. The Literature of Spanish America. *Three hours credit.* Assistant Professor DEL TORO.  
Prerequisites: Courses 5 and 6 or Courses 13 and 14.  
Omitted in 1923-1924.]

*Graduate Courses.*

- [16. Old Spanish Literature. Continuation of Course 15. *Two hours credit.* Professor WAGNER.  
Omitted in 1923-1924.]
52. Continuation of Seminary Course in Spanish Literature. *Two hours credit.* Professor WAGNER.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

1. Beginners' Course. *Four hours credit.* Mr. EDDY.
2. Elementary Course. *Four hours credit.* Mr. MICHAUD.
3. Second Year. *Four hours credit.* Mr. MERCADO.
5. The *Don Quixote*. *Two hours credit.* Professor WAGNER.
7. Advanced Practical Spanish. *Two hours credit.* Mr. ———.
19. Latin-American Life and Literature. *Two hours credit.* Assistant Professor DEL TORO.
33. Spanish Life and Literature. *Two hours credit.* Assistant Professor DEL TORO.

*For Graduates.*

23. The Modern Spanish Novel. *Two hours credit.* Professor WAGNER.
29. The Contemporary Drama of Spain. *Two hours credit.* Assistant Professor DEL TORO.

**SEMITICS, INCLUDING STUDIES IN THE ENGLISH BIBLE  
AND THE HISTORY OF RELIGIONS**

(GROUP I)

The department of Semitics, while carefully avoiding sectarian instruction, offers courses in Religious History, Biblical Literature, Geography, and History, and the Semitic languages upon the same basis as courses in other departments of language, literature, history, etc. All the non-linguistic courses are open to students who have not taken the languages offered by the department.

Students who intend to pursue theological studies are advised to consult the head of the department as to the lines of study which may be pursued with greatest advantage in connection with Semitics and as a preparation for the work of the theological seminary.

Students may begin the study of Hebrew in their sophomore year, and those who intend to enter a theological seminary or make a special study of Semitics are advised to begin early in their course.

Students who have taken Hebrew and Hellenistic (New Testament) Greek for four semesters are allowed special privileges in several of the theological seminaries. *Note the following:*

- (1) They may graduate in two years, thus saving a whole year; or,

(2) They are permitted to enter upon advanced courses for which they would not otherwise be prepared. They are thus enabled to gain a commanding knowledge of the *Literature of the Bible* which is impossible to students who are compelled to spend a large portion of their junior and middle years in the seminary in the purely academic work of learning languages, and, further, are enabled to enter into competition for the large fellowships offered by the seminaries for foreign study.

CONSULTATION HOURS.—During the registration period, Room 201, M. H. During the semester, *Tu, Th*, at 10. Room 201, M. H.

### Biblical Literature and History

#### FIRST SEMESTER

13. The Making of the Bible. *Three hours credit.* Professor WATERMAN.

This course will involve a study of the formation of the Canon, the significance of the Manuscripts, and a detailed analysis of the books composing the Old Testament, the New Testament, and the Apocrypha, including an examination of the historical setting, authorship, purpose, and message of the various books to the age when they were written.

18. The Bible as Literature. *Two hours credit.* Professor WATERMAN.

This course will consist of a critical study of the chief literary masterpieces of the Bible, from the literary standpoint, as contributions to world literature. Particular attention will be given to the Book of Job, The Psalms, and examples of Hebrew poetry and oratory as exemplified in the prophets.

- [15. The Religions of the Semites. *Two hours credit.* Professor WATERMAN.

A survey of the religions of Babylonia, Egypt, Palestine, and Arabia in their mutual relations.

Omitted in 1923-1924.]

17. Israelitish History and Prophecy. *Two hours credit.* Professor WATERMAN.

This course will deal with the developments and the mutual relations of history and prophecy during the great creative period of Israel's religion, from the ninth to the seventh century, B.C. Prerequisite: Course 13 or equivalent.

20. The History of Semitic Law. *Two hours credit.* Professor WATERMAN.

This course will deal with the origin and development of law and legal institutions in Babylonian, Israelitish, and Mohammedan civilization. Special attention will be given to the Laws of Hammurabi and the Mosaic Code.

SECOND SEMESTER

12. The History of Israel. *Two hours credit.* Professor WATERMAN.  
This course will cover Israelitish development from 1200 B.C. to the fall of Jerusalem, 70 A.D.  
Students contemplating this course, who have not had Course 13 or an equivalent, should consult with the head of the department.
14. Continuation of Course 13. *Two hours credit.* Professor WATERMAN.
16. The Ethnic Faiths. *Two hours credit.* Professor WATERMAN.  
A general survey of the great living Ethnic Faiths of India, Persia, China, and Japan.
- [19a. Elementary Phenomena of Religion. *Two hours credit.* Professor BONNER.  
A study of the primitive forms of religion, such as fetichism, animism, ancestor-worship, magic, etc. Lectures, assigned readings, and reports.  
Omitted in 1923-1924.]

SEMITIC LANGUAGES

Hebrew

FIRST SEMESTER

1. Course for Beginners. Grammar and easy reading. *Three hours credit.* Professor WATERMAN.  
(Credit will not be given for a single semester of Hebrew.)
3. Intermediate Hebrew. Critical reading of the books of Samuel and Kings. *Two hours credit.* Professor WATERMAN.

SECOND SEMESTER

2. Continuation of Course 1. Reading of selections from Genesis; grammar and Hebrew prose writing. *Three hours credit.* Professor WATERMAN.
4. Continuation of Course 3. Psalms and selections from the Minor Prophets. *Two hours credit.* Professor WATERMAN.  
A critical reading, with an interpretation in the historical light of the times.

Assyrian

- [5. Course for Beginners. *Three hours credit.* Professor WATERMAN.  
Omitted in 1923-1924.]
10. Advanced Course. Historical and Religious Texts. *One hour credit.* Professor WATERMAN.

### Aramaic

- [7. Grammar and Reading of the Aramaic parts of the Old Testament (Daniel 2:4-7, and 27; Ezra 4:8-6:18, and 7:12-26). *Three hours credit.* Professor WATERMAN.  
Omitted in 1923-1924.]

### Arabic

9. Course for Beginners. Grammar and easy reading. *Three hours credit.* Professor WATERMAN.

## ZOOLOGY

### (GROUP II)

The department of Zoölogy occupies the northwest portion of the Natural Science Building. The easiest approach from the interior of the Campus is by the West entrance to the auditorium in the Natural Science Building.

**CONSULTATION HOURS.**—All students who expect to do advanced work in Zoölogy should confer with the *advisory committee of the department before* making elections. This committee, which consists of Professors REIGHARD and LA RUE and Assistant Professor OKKELBERG, will meet in Room Z 242, N. S., 10 to 12 A. M. daily, during the registration period. Other hours will be posted on the department bulletin board. All students who elect Zoölogy 1 must consult the Committee on Elections.

For consultation hours of individual members of the Zoölogical faculty, consult the departmental bulletin board near the door of Room Z 233, N. S.

**FIRST-YEAR ELECTIVES.**—Course 1 should precede all other Zoölogy course except 3, 3a, and 20. Premedical students, forestry students, and all others who elect Zoölogy 1 in either semester of their freshman year must take Botany 1 or 1a in the other semester.

**SECOND-YEAR ELECTIVES.**—Those who elect Zoölogy 1 in the first semester of their second or later years may take Zoölogy 7, 5a, or 11 in the second semester of the same year.

**ADVICE TO STUDENTS.**—The work of the Zoölogy department is planned to meet the needs of the following classes of students:

1. *Those who have little time for the subject and who seek a knowledge of the concrete facts and the theories of biology as part of a liberal education* should take the courses listed as introductory (Courses 1, 3, 3a, and 20), but may, in addition, pursue to advantage any of the following courses: 4, 5a, 7, 8, 8a, 9, 10, 11, 15, 15a, 21. The order of the election of these courses will vary with the needs of the student, and should be determined after consultation with the advisory committee of the department.

2. *Students who are preparing to study medicine*, and who have had Course 1 in Zoölogy and 1 or 1a in Botany, or their equivalent, should take as many as possible of the following courses: Courses 5a, 9, 10, 15, and 15a.

3. *Students of Forestry* are required to take Course 1 or its equivalent, and should, if possible, elect in the order named Courses 3, 7, and 20. The attention of students intending to study for the degree of Master of Science in Forestry is called to the special bulletin describing the Curriculum in Forestry.

4. *Students preparing to teach Zoölogy in secondary schools* are advised to elect, preferably in the order named, the following courses: 1, 7, 4, (3), (3a), 18, (18a), 5a, 8, 8a, and 11, and Education 4g. Those who wish to receive the departmental recommendations to teach Zoölogy as their principal subject in secondary schools are *required* to complete satisfactorily all of these courses or their equivalent, except those enclosed in parentheses. A formal departmental recommendation signed by the members of the Zoölogy staff will be given to such students. Students who show unusual proficiency in Zoölogy may be recommended, at the discretion of the Zoölogy staff, to teach Zoölogy as a minor subject in secondary schools after taking Courses 1, 4 or 7, 11, and 18.

5. *Students who wish to become regular assistants in the department*, or who expect to become professional zoölogists, should elect, after Course 1, Courses 4, 7, 5a, 9, 18, and 18a. Students in Courses 18 and 18a are given an opportunity to become acquainted with the methods of conducting a laboratory. For details, see the announcement of these courses. Other things being equal, those who have had Courses 18 and 18a will be given preference in the selection of the regular assistants in the department.

6. *Candidates for the higher degrees* should consult the Announcement of the Graduate School. Their work should be elected only after consultation with the advisory committee of the department, but will always include Courses 12 and 13. Those who expect to teach should arrange their work to include the courses in the first list of paragraph 4 above.

LABORATORY WORK.—The time necessary each week for the average student to do the laboratory work of each course is indicated by the number of required laboratory periods of three hours, but varies with the capacity of the student. Students must do their laboratory work during the regularly scheduled hours, but those for whom this time is insufficient will have an opportunity to complete the work at other hours.

RELATED COURSES IN OTHER DEPARTMENTS.—The department of Zoölogy does not offer courses on fossil animals, but students of Zoölogy should consult the announcement of the department of Geol-

ogy, where courses in *Paleontology* are described. Courses in Histology are given in the Medical School, and courses in Cytology in the department of Botany.

Students interested in the philosophical aspects of biology, or in psychology, will find courses in these fields offered in the department of Philosophy.

#### *Biological Station*

Courses in Ichthyology, Herpetology and Mammalogy, Ornithology, Entomology, and Limnology and research work on birds, fishes, reptiles, amphibians, mammals, insects, and parasitic worms are offered during the Summer Session at the University of Michigan Biological Station, situated on Douglas Lake, Cheboygan County, Michigan. The above courses, except the research, are open to students who have satisfactorily completed Course 1 at the University, or its equivalent. For the details of these course, see the special bulletin of the Biological Station.

#### *Woods Hole Scholarship*

Through the kindness of Dr. Bryant Walker, the University is able to offer a scholarship which pays the tuition of one student at the Marine Biological Laboratory, Woods Hole, Mass. during the summer session of six weeks. *Six hours credit* may be obtained at the University for work done at Woods Hole. Application should be made to Professor REIGHARD.

#### FIRST SEMESTER

##### *A. Introductory Courses.\**

1. Principles of Animal Biology. Lectures, recitations, and laboratory work. *Four hours credit.* Professors SHULL, LA RUE, and WELCH, Assistant Professors OKKELBERG and HEILBRUNN, Dr. BLANCHARD, Mr. THATCHER, Dr. FOLGER, and assistants. This course is designed to introduce the student to the fundamental principles in each of the major divisions of biology. The elementary facts of structure, physiology, classification, ecology, geographical distribution, paleontology, and evolution are discovered at first hand. Except in the exercises on classification, animals are not studied as representative of certain groups, but only in so far as they furnish the basis for drawing conclusions regarding principles.
3. Organic Evolution. *Two hours credit.* Professor REIGHARD. The illustrated lectures deal with the evidences for evolution drawn from classification, structure, development, paleontology, distribution, variation, and experiment, and under the

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\* Introductory courses are those without prerequisites. Course 1 is open to freshmen, but Course 3, 2a, and 2b must not be elected by freshmen.

head of factors, with such topics as natural selection, the inheritance of acquired characters, and the influence of environment.

No prerequisite. Freshmen should not elect this course.

This course may profitably be followed by Course 3a in the second semester.

20. The Conservation of Wild Life. *Two hours credit.* Lectures. Professor RUTHVEN.

This course discusses the importance of the conservation of animals and the factors and methods employed. The animals of economic value are shown to constitute a natural resource of considerable value, and from an analysis of the factors involved and the methods in vogue an attempt is made to develop the principles that should guide intelligent efforts to conserve these forms. The course should be of general interest at this time, and should appeal particularly to prospective teachers of Zoölogy, foresters, and others who will come in contact with wild life.

This course is open only to seniors.

*B. Advanced Courses.\**

8. Natural History of Animals, with special reference to the principles of ecology and behavior. *Four hours credit.* Lectures, laboratory, and field work. Professor REIGHARD.

Course 8 and 8a form a year's work, the purpose of which is:

(1) To present in a systematic way those fields of natural history that have been organized into sciences. These fields are (a) the relations of animals to environmental (animal ecology), and (b) animal behavior.

(2) To acquaint students with the animals of the region—both invertebrate and vertebrate—in their natural surroundings. Only those invertebrates are considered that are of importance in presenting the facts and principles of ecology. The classification of vertebrates is studied in considerable detail, but little time is given to the classification of invertebrates. This subject is taken up in more detail in Courses 4 and 7.

(3) To afford a training in the technique of the subject. Emphasis is laid on methods of field observations and on field notes. The notes are criticised and discussed with the purpose of developing scientific method in biology.

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\* Advanced courses are those with Course 1 in Zoölogy or its equivalent as prerequisite. Other prerequisites are required in certain cases and are announced in the descriptions of the courses.



The *field work* is carefully planned and regularly carried out after the manner of laboratory work. It includes, on the side of ecology, the recognition and description of the principal local habitats and of the more important members of their animal communities. The reactions of typical forms to environmental factors are experimentally tested as far as possible. On the side of behavior the field recognition and behavior of fishes, amphibia, reptiles, birds, and mammals are taken up in detail. The order of the field work is determined by the seasons. Aquatic habitats (fresh water biology) is the chief topic in the fall. The winter months are devoted largely to indoor work on vertebrates, but include some field work. In the spring the field work is devoted to the behavior of vertebrates and to terrestrial habitats. Occasionally, all-day Saturday excursions are made. *The half days on which this work is scheduled must be free from other work.*

The courses are of cultural value and are required of those who expect the departmental recommendation to teach Zoölogy as a major subject in secondary schools. These courses should be preceded by Course 1 or its equivalent.

Courses 8 and 8a are prerequisites for Course 21.

4. Invertebrate Zoölogy. *Four hours credit.* Lectures, laboratory, and field work. Professor WELCH.

This course deals especially with the classification, morphology, embryology, physiology, and life histories of the invertebrates exclusive of insects. Most of the work is given in the form of lectures, laboratory, field trips, and demonstrations. The lectures deal with the general aspects of invertebrate zoölogy, while the laboratory work is concerned mainly with detailed morphological studies of a selected series of invertebrates and the classification of typical forms. Field work is organized primarily to familiarize the student with common invertebrates in the living state and with some of the main features of local distribution. Laboratory studies of living forms are also included.

9. Embryology of Vertebrates. *Five hours credit.* Lectures and laboratory. Assistant Professor OKKELBERG.

A course on the descriptive embryology of vertebrates. The lectures are comparative; the laboratory work, dealing largely with the organogeny of the chick, is supplemented by the demonstration and study of other forms. Some attention is given to the simpler embryological laboratory methods. The course is particular value to medical students. Zoölogy 1 or its equivalent is prerequisite.

10. General Physiology. *Four hours credit.* Lectures and laboratory. Assistant Professor HEILBRUNN.

An introduction to the modern methods and results of general

physiology. This is the science of living matter considered in its most general aspect. It deals especially with those phenomena which are universally associated with the living process and which are therefore common to all types of plant and animal life. In the lectures attention is first directed to the structural, physical, and chemical make-up of protoplasm. The activities of living cells and organisms are then considered. These include metabolism, movement, response to stimulation. The attempt is made to understand the various forces which are involved in vital activity. The laboratory work helps to illustrate the lectures and at the same time affords training in certain chemical and physical manipulations which are important for many phases of biological work.

This course may usually be elected with profit only by seniors and graduates adequately prepared in the fundamental sciences; others may be admitted after consultation.

In special cases, students who have had extensive laboratory training in related sciences may, after consultation, take only the lectures of this course, electing it as Course 10a, and receive *two hours credit*.

15. Genetics. *Three hours credit.* Professors SHULL and BARTLETT. This course gives a comprehensive view of the subjects of heredity and variation. The student is given an opportunity to become familiar with the genetical investigations in progress in both the departments of Zoölogy and Botany, as, for example, sex determination in rotifers and insects, complicated Mendelian phenomena in *Drosophila*, mutation and hybridization phenomena in *Oenothera*, and practical plant breeding projects.

Open to graduates and to qualified undergraduates. Students in sociology and prospective medical students who have had some training in biology will find that this course affords a basis for the understanding of human heredity.

Courses 15 and 15a form a continuous year's work. Those who elect Course 15 should, if possible, elect Course 15a in the second semester.

18. Laboratory Methods and Management. *Three hours credit.* Laboratory work and conferences. Professor LA RUE.

Courses 18 and 18a are designed to give prospective teachers, assistants, and those who plan to become professional zoölogists actual training in the methods employed in the conduct of a zoölogical laboratory. The work of the first semester (Course 18) is extremely varied. The student is introduced to many types of technique (other than microscopic) not ordinarily presented in the usual courses. Some of the methods taken up are those of photography, the collection of laboratory materials and their preservation, the rearing of cultures, care

- of aquaria, care of laboratory rooms, glassware, and instruments, the structure and use of the microscope and its accessories, projection apparatus, the making of charts and skeletons. Students electing the course should be provided with cameras. Those who expect to become assistants in the department should elect Course 18 and follow it with Course 18a. Prospective teachers who wish to receive the recommendation of the department must take Course 18.
- 12. Literature of Zoölogy. *One hour credit.* Professor REIGHARD and Assistant Professor OKKELBERG.

The instructors and advanced students form a Journal Club, which holds stated meetings. Reports are made on research work done by members of the zoölogical staff and on important current papers, and are followed by informal discussion. Although the meetings are open to all, the membership is restricted. The course should be elected only after consultation. Participation in the work of the Journal Club is required of all assistants in the department, and the course *must be elected* each year by all graduate students whose principal subject is Zoölogy.
- 16. Classification and Natural History of Animals.

The course may be elected as 16a, *two hours credit*; 16b, *three hours*; 16c, *five hours*; or 16d, *ten hours*. *Permission must be first obtained from the advisory committee of the department.*

The time and place of carrying on the work should be arranged in accordance with the group selected with one of the members of the staff named below:

The Fishes: Professor REIGHARD and Mr. HUBBS. .  
The Reptiles: Professor RUTHVEN.  
The Thysanoptera: Professor SHULL.  
Animal Parasites: Professor LA RUE.  
The Insects and Oligochaetes: Professor WELCH.  
The Mammals: Mr. DICE.  
The Insects: Mr. GAIGE.

The purpose of this course is to increase our knowledge of the fauna of the region and to give students an opportunity to become acquainted with the methods and aims of systematic work and the natural history and classification of the forms in particular groups.
- 25. Advanced Zoölogical Studies.

This course is intended to introduce the student to the methods used by the investigator in zoölogy. The work is individual. To each student will be assigned a topic. He will be required

to examine the original literature and in some cases to prepare specimens illustrating the topic. The results of his work must be embodied in a report. The course is required of those selecting Zoölogy as a major subject for the Master's degree, and may, at the option of the zoölogical faculty, be required of those selecting Zoölogy as a major for the doctorate. *Application should be made to the advisory committee of the department.* The work may be pursued under the direction of any member of the zoölogical faculty. The course should be elected in the name of the person with whom the work is to be done, as 25a, two hours credit; 25b, three hours 25c, five hours; or 25d, ten hours.

28. French Reading. *One hour credit.* Professor LEE.  
Classical biological treatises in French as well as important papers in the current literature will be selected. The purpose of the course is to cultivate facility in reading the literature of biology and to familiarize the student with the technical terms of the science. The course should be of value to students of zoölogy, botany, medicine, and related sciences.
31. Investigations in the Behavior of Fishes and other Lower Vertebrates in their Natural Environment. This work may be elected as 31a, two hours credit; 31b, three hours; 33c, five hours; 31d, ten hours. Professor REIGHARD.
33. Investigations in Zoögeography. This work may be elected as 33a, two hours credit; 33b, three hours; 33c, five hours; 33d, ten hours. Professor RUTHVEN.
35. Investigations in Entomology and on Oligochaeta. This work may be elected as 35a, two hours credit; 35b, three hours; 35c, five hours; 35d, ten hours. Professor WELCH.
37. Investigations in Genetics. This work may be elected as 37a, two hours credit; 37b, three hours; 37c, five hours; 37a, ten hours. Professor SHULL.
39. Investigations in General Physiology. This work may be elected as 39a, two hours credit; 39b, three hours; 39c, five hours; 39d, ten hours. Assistant Professor HEILBRUNN.
41. Investigations in Helminthology. This work may be elected as 41a, two hours credit; 41b, three hours; 41c, five hours; 41d, ten hours. Professor LA RUE.

## SECOND SEMESTER

*A. Introductory Courses.\**

1. Principles of Animal Biology. *Four hours credit.* Lectures, recitations, and laboratory. Professors SHULL, LA RUE, and WELCH, Assistant Professors OKKELBERG and HEILBRUNN, Dr. BLANCHARD, Mr. THATCHER, Dr. FOLGER, and assistants.  
A repetition of Course 1, given in the first semester.

- 3a. Heredity. *Two hours credit.* Lectures. Professor SHULL.

A semi-popular account of the facts of heredity as developed since the year 1900, with emphasis on their relation to human affairs. The earlier lectures deal with the elementary facts of reproduction and development, the mechanism through which heredity is manifested, the results of hybridization, including Mendel's Law, and the determination of sex. These are followed by heredity in man, with its application in the broadest sense, including eugenics, popular fallacies and superstitions, maintenance of racial qualities, and the effects of war. While the course is primarily of interest to those specializing in the biological and social sciences, it is designed to meet certain needs common to all classes of students. It is desirable, when possible, to precede this course with Course 3 in the first semester.

No prerequisites.

*B. Advanced Courses.†*

7. General Entomology. *Four hours credit.* Lectures, laboratory, and field work. Professor WELCH.

This course deals with the fundamental aspects of general entomology and is intended to contribute to the preparation necessary for professional work in zoölogy as well as to constitute a foundation for special work with insects. The material is presented in lectures, laboratory work, field studies, and demonstrations. The lectures are general in nature, including among other subjects the following: classification of insects and other arthropods; morphology; physiology, embryology; phylogeny; metamerism; reproduction, including parthenogenesis; paedogenesis; polyembryony and gynandromorphism; metamorphosis; respiration; aquatic insects and their evolution; regeneration; interrelations of insects; insects and disease; and insects in relation to other organisms. Laboratory

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\* Introductory courses are those without prerequisites. Course 1 is open to freshmen, but Courses 3, 3a, and 20 must not be elected by freshmen.

† Advanced courses are those with Course 1 in Zoölogy or its equivalent as a prerequisite. Other prerequisites are required in certain courses and are announced in the descriptions of the courses.

work includes morphological studies on certain representative types, followed by the classification of an extensive series of selected forms. The generous amount of field work provides training in problems of local distribution, field recognition of common species, approved methods of collection, and construction of field records. Life history studies involving field and vivarium work are included. Methods of mounting and preservation are also considered.

- 8a. Vertebrate Zoölogy. Natural History of Animals, with special reference to the principles of ecology and behavior. *Five hours credit.* Lectures, laboratory, and field work. Professor REIGHARD.

This course deals chiefly with the recognition and behavior of local vertebrates, but may include a general study of terrestrial habitats (ecology). See announcement of Course 8 in the first semester. The course should be preceded by Courses 1, 4, 7, and 8, but, *upon consultation*, exceptions may be made to this rule.

Occasional all-day Saturday excursions. The three half days scheduled for field work must be entirely free from other course work, but the work will usually be accomplished in two half days.

- 5a. Comparative Anatomy and Physiology of Vertebrates. *Four hours credit.* Lectures and laboratory. Assistant Professor OKKELBERG.

The lectures deal with the comparative anatomy, comparative physiology, and evolution of the various vertebrate organs and systems of organs. The classification of vertebrates in relation to their evolution is also discussed. The lectures are supplemented by demonstrations. The laboratory work consists in the dissection of vertebrate types, including fish, amphibian, reptile, bird, and mammal. The course is of value to students of medicine and dentistry as well as to teachers and others. It may follow Zoölogy 1.

- 18a. Laboratory Methods and Management. *Three hours credit.* Professor LA RUE.

A continuation of Course 18, but emphasis will be placed on the methods of zoölogical microtechnic. Opportunity will be given for the gaining of a wide experience in the use of various fixing agents, methods of embedding, staining, and mounting. This course is required of those who expect to become assistants in the department and is of value to prospective teachers and professional zoölogists.

11. Mammalian Anatomy and Physiology. *Four hours credit.* Lectures and laboratory. Assistant Professor HEILBRUNN.

This course is designed for those who desire to supplement their knowledge of biological principles with more specific knowledge concerning the human body. It may directly follow Course 1. The laboratory work includes the dissection of a mammal (the cat), whose structure closely resembles that of man. Gross dissection is supplemented by the study of histological structures in so far as it may be necessary to an understanding of physiological principles. Physiological experiments are performed to demonstrate the activities of the various structures of the body and acquaint the student with physiological methods. The lectures deal primarily with the functions of the various systems of the body studied in the laboratory and with structure only as it relates to function.

As this course is primarily intended for those who are not looking toward medicine, premedical students are advised to elect Course 5a in preference to Course 11.

Students who have taken or are taking Course 5a may at their option take only the lectures of this course, electing it as Course 11a, and receive *two hours credit*.

- 15a. Genetics. *Three hours credit.* Professors SHULL and BARTLETT. A continuation of Course 15 in the first semester.

21. Zoögeography. Lectures and laboratory. *Three hours credit.* Professor RUTHVEN.

The course is a discussion of the distribution of animals, approached not from the standpoint of the present distribution of animal groups, but rather from the point of view of the factors involved in migration and ecesis. It deals with those relations existing between the animal forms concerned and the environment, that have an influence upon distribution, and upon this basis an attempt is made to interpret the present conditions.

The lectures discuss the general subject and are supplemented by field and laboratory work on the local fauna and museum material. The student thus becomes familiar with materials illustrative of the principles discussed in the lectures as well as with the methods of study.

Prerequisites: Courses 8 and 8a.

24. Museum Methods. *Two hours credit.* Museum of Zoölogy. Professor RUTHVEN.

This course is designed for students who wish to specialize in Zoölogy and contemplate museum work as a profession. The nature of the zoölogical studies which can best be carried on in museums is described, and instruction is given in the methods of preserving and caring for material, the preparation of

manuscripts and illustrations for publication, and other museum work. The course is given in the Museum of Zoölogy, and the methods, specimens, and equipment used are those of the Museum.

The number of elections is restricted, and permission to take the course must be obtained from Professor RUTHVEN.

13. Literature of Zoölogy. Continuation of Course 12. *One hour credit.* Professor REIGHARD and Assistant Professor OKKELBERG.

Course 13 has the same restrictions as Course 12. The work of the course must be participated in by all assistants in Zoölogy, and it *must be elected* each year by all candidates for higher degrees whose principal subject is Zoölogy.

17. Classification and Natural History of Animals. Continuation of Course 16. The course may be elected as 17*a*, *two hours credit*; 17*b*, *three hours*; 17*c*, *five hours*; or 17*d*, *ten hours*. *Application should be made to the advisory committee of the department.*

The subjects and teachers are the same as in Course 16.

26. Advanced Zoölogical Studies. Identical with Course 25, which see. The course may be elected as 26*a*, *two hours credit*; 26*b*, *three hours*; 26*c*, *five hours*; or 26*d*, *ten hours*. *Application should be made to the advisory committee of the department.*

27. Physiological Seminar. *Two hours credit.* Assistant Professor HEILBRUNN and Dr. FOLGER.

This seminar will involve a discussion of certain branches of physiological literature of especial interest to the zoölogist. An attempt will be made to examine critically the sources of knowledge in at least two branches of physiology. For 1924 the topic for discussion will be, "The Physiology of Development," and for 1925, "Tropisms." All graduate students are eligible for admission, although it is preferable for them to have taken Course 10. Each meeting of the class will occupy two hours.

29. German Reading. *One hour credit.* Professor LEE.

This course is of the same nature as Course 28, given in the first semester.

32. Investigations in the Behavior of Fishes and other Lower Vertebrates in their Natural Environment. This work may be elected as 32*a*, *two hours credit*; 32*b*, *three hours*; 32*c*, *five hours*; 32*d*, *ten hours*. Professor REIGHARD.

34. Investigations in Zoögeography. This work may be elected as 34*a*, *two hours credit*; 34*b*, *three hours*; 34*c*, *five hours*; 34*d*, *ten hours*. Professor RUTHVEN.



36. Investigations in Entomology and on Oligochaeta. This work may be elected as 36a, *two hours credit*; 36b, *three hours*; 36c, *five hours*; 36d, *ten hours*. Assistant Professor WELCH.
38. Investigations in Genetics. This work may be elected as 38a, *two hours credit*; 38b, *three hours*; 38c, *five hours*; 38d, *ten hours*. Professor SHULL.
40. Investigations in General Physiology. This work may be elected as 40a, *two hours credit*; 40b, *three hours*; 40c, *five hours*; 40d, *ten hours*. Assistant Professor HEILBRUNN.
42. Investigations in Helminthology. This work may be elected as 42a, *two hours credit*; 42b, *three hours*; 42c, *five hours*; 42d, *ten hours*. Professor LA RUE.

SUMMER SESSION OF 1924

(These or similar courses will be offered in 1925)

1. Principles of Animal Biology. *Four hours credit*. Professor SHULL, Dr. FOLGER, and assistants.
- 9a. Embryology of Vertebrates. *Four hours credit*. Assistant Professor HEILBRUNN.
- 3a. Heredity. *Two hours credit*. Professor SHULL.
25. Advanced Zoological Studies. *Credit to be arranged*. Professor SHULL, and Assistant Professor HEILBRUNN.

BIOLOGICAL STATION

101. Ichthyology. *Two hours credit*. Mr. HARPER.
103. Limnology. *Four hours credit*. Professor WELCH.
105. Entomology. *Four hours credit*. Professor HUNGERFORD.
107. Ornithology. *Two hours credit*. Dr. BLANCHARD.
109. Advanced Ornithology. *Two hours credit*. Dr. BLANCHARD.
111. Herpetology and Mammalogy. *Two hours credit*. Mr. HARPER.
113. Special and Research Work in Zoölogy. *Two, four, six, or eight hours*. Professors LA RUE, WELCH, and HUNGERFORD, Dr. BLANCHARD, and Mr. HARPER.

# Colleges of Engineering and Architecture

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*Special Announcements giving further information in regard to these colleges are published annually. For copies of these Announcements or for further information relating to the Colleges, address Professor Louis A. Hopkins, Secretary, Ann Arbor, Mich.*

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In the legislative act under which the University was organized in 1837, provision was made for instruction in engineering and architecture. Work was not actually begun in engineering, however, until 1858, and the first degrees were conferred in 1860. The engineering courses were included in the curriculum of the College of Literature, Science, and the Arts, until the close of the collegiate year, 1894-1895, and the first degrees were conferred in 1860. The engineering established by the Board of Regents as a separate unit of the University. Instruction in architecture was organized in a sub-department of the College of Engineering in 1906. In 1913 the College of Architecture was given control of its programs of study, and, in general, charged with the administration of its affairs.

The Colleges of Engineering and Architecture offer a group of four-year curricula leading to the bachelor's degree. The degree conferred upon completion of one of these curricula is Bachelor of Science in Engineering, or Bachelor of Science in Architecture. The requirements for these degrees will be found on pages 446 and 506.

The academic year extends from Tuesday, September 23, 1924, to Monday, June 15, 1925. In addition to four academic years, attendance at a Summer Session of eight weeks, beginning the Monday after Commencement (June 23, 1924, to August 15, 1924,) is required between the second and third years of residence for all students in the College of Engineering. In addition to four academic years of residence, students in the College of Architecture are required to work four months in an architect's office.

## REQUIREMENTS FOR ADMISSION

The requirements for admission are the same for all students in Engineering and Architecture.

Applicants for admission must be at least sixteen years of age, and must present satisfactory evidence of good moral character. They must bring credentials from the preparatory school last attended.

Applicants may be admitted on diploma, by examination, or on credits from another college. Advanced credit may be allowed for work done in other institutions, provided the applicant's record shows that such work is equivalent to some course or courses offered in the University of Michigan. Provision is also made for the admission of special students under certain conditions.

## ADMISSION OF CANDIDATES FOR A DEGREE

Candidates for admission as regular undergraduate students must pass examinations in fifteen units as indicated below or must be recommended by an accredited preparatory school as graduates who have satisfactorily completed these requirements for admission. Students who present fifteen satisfactory units but are deficient in not more than one and one-half prescribed units, may be admitted provisionally, but must make up their deficiencies within one year. These requirements are stated in units, a unit being defined as a course covering an academic year that shall include in the aggregate not less than the equivalent of one hundred and twenty sixty-minute hours of classroom work. Two hours of laboratory, drawing, or shop work are counted as equivalent to one of recitation.

### Prescribed Units for Admission

#### GROUP I. ABSOLUTE REQUIREMENTS—10 UNITS

English .....	3 units
Grammar, Composition, Classics, History of English Literature.	
Mathematics .....	3 units
Algebra, through quadratics, Geometry, Plane, Solid, Spherical.	
Physics .....	1 unit
History .....	1 unit
Greek, Latin, German, French, Spanish—One of these.....	2 units

#### GROUP II. ALTERNATIVE REQUIREMENTS—1½ or 2 UNITS

Chemistry .....	1 unit
Trigonometry, Plane .....	½ unit
Greek, Latin, German, French or Spanish.....	1 or 2 units
Manual Training .....	1 unit

**GROUP III. OPTIONAL REQUIREMENTS— $3\frac{1}{2}$  OR 3 UNITS**

The 3 or  $3\frac{1}{2}$  optional units may be presented in any subjects for which credit toward graduation is given by the accredited school and which are taught in a manner approved by the University; but no more than three of the fifteen units required for admission will be accepted in vocational subjects and no more than two units in any one of them. Students of Architecture should, if possible, offer one unit of free-hand drawing.

The Manual Training must be of such a character as to excuse the student from Shop 2 in the University. Students who present the full requirements for admission without Chemistry or Trigonometry, will take a two-hour course in Trigonometry and two four-hour courses in Chemistry during their first year of residence, receiving credit for the same toward graduation.

All applicants must send prospectuses of the courses of study of letters from instructors describing the work done when credit is asked in the vocational subjects,—Manual Training, Drawing, Agriculture, and Commercial Branches. In general, the standards set up by the Commission on Accredited Schools and Colleges of the North Central Association of Colleges and Secondary Schools will be recognized in adjusting high-school credit in vocational studies.

Chemistry and Plane Trigonometry are placed in an alternate group with German, French, Spanish, Latin, Greek, and Manual Training, so that all high schools with three or more teachers may offer full preparation for the Colleges of Engineering and Architecture, even if they cannot teach Chemistry and Trigonometry. These courses are offered in the Summer Session to accommodate students who wish instruction in them before entering the Colleges.

Some modifications in the language requirements may be allowed in the case of students whose native tongue is other than English. These cases will be considered individually.

Under English is included Grammar, Composition, Reading of English Classics, and History of English Literature. The History of English Literature may form part of the work of either the third or fourth year. Four units in English should always be presented whenever it is possible to do so.

**Language Requirement for Graduation**

All regular students in the College of Engineering are required to complete the equivalent of Course 4 in French, German, or Spanish; in the College of Architecture they are required to complete the equivalent of Course 3 in French or German, as given in those Colleges. Course 2 in Spanish, when preceded by at least three years of Latin or Greek, or Course 3 in Spanish when preceded by two years of Latin or Greek, will satisfy this modern language requirement. If the engineering student meets this requirement with less than sixteen hours of college credit, or the architectural student with

less than twelve hours of college credit, he must substitute for the balance courses from the following list: — English, Foreign Languages, Oratory, History, Political Science, Political Economy, Sociology, Philosophy, Fine Arts, Music.

### ADMISSION ON DIPLOMA

Students presenting graduation certificates from any of the schools officially approved by the Committee on Diploma Schools are admitted without examination to the Colleges of Engineering and Architecture, if they are recommended by the principal of the school in the units required for admission. Students must have done their work in mathematics and physics recently enough to have these subjects thoroughly in mind, if they are to enter and do the work required in either College. These studies may be reviewed in the Summer Session, June 23, to August 15, 1924. College credit may be given for studies presented in excess of fifteen units required for admission, if these studies are deemed equivalent to similar courses in the University. Such credit will be adjusted after consultation with the professor in charge of the department concerned.

The approved schools of the University of Michigan do not necessarily include all of those accredited to or affiliated with other universities or colleges.

Diplomas and seventy-two-count academic certificates issued by the Regents of the University of the State of New York are accepted by the Colleges of Engineering and Architecture in place of examinations in all the subjects required for entrance which are covered by such credentials. A statement from the teacher, giving in detail the work done and proficiency attained in these subjects, must be submitted by the holder of the credentials.

A student who has failed to secure a certificate of graduation and the principal's recommendation from an approved school will be required to pass the regular examination for entrance in all subjects.

Students who desire to enter the College of Engineering should present their credentials at the office of the Assistant Dean, Room 255, Engineering Building, not later than September 15, 1924, if they intend to enter for the first semester, and not later than February 7, 1925, if they intend to enter for the second semester. Students who desire to enter the College of Architecture should present their credentials on or before these dates to the Professor of Architecture, Room 209, of the same building.

It is better to mail the credentials to the proper officer as long before these dates as practicable. They will be examined, placed on file, and the applicant will be informed whether they satisfy the requirements or not. Certificates and diplomas from schools other than those officially approved by the University do not excuse an applicant from the admission examinations.

**ADMISSION ON EXAMINATION**

Examinations for admission are held in September and in February. These examinations are conducted by the College of Literature, Science, and the Arts, in accordance with the schedule on page 143. Applicants presenting themselves too late for the scheduled examinations are required to pay an examination fee of *five dollars*.

**SCOPE OF PREPARATORY WORK**

In English Language, English Literature, French, German, Spanish, Greek, Latin, Physics, Chemistry, History, Physiography, Botany, and Zoölogy the amount and character of the work which will be accepted is identical with that described for the College of Literature, Science, and the Arts.

*Mathematics.*—The three and one-half units in mathematics include Algebra, Geometry, and Trigonometry, as follows: *Algebra.*—Fundamental Rules, Fractions, Simple Equations, Involution and Evolution, the Theory of Exponents, and Quadratic Equations, as given in Beman and Smith's Elements of Algebra, or an equivalent in other authors. *Geometry.*—Plane, Solid, and Spherical Geometry as given in Beman and Smith's Plane and Solid Geometry, or an equivalent in other authors. *Trigonometry.*—Plane Trigonometry as given in Hall and Frink's Trigonometry, or an equivalent in other authors.

N. B. — It is very desirable that high schools whose graduates are received on diploma arrange their courses so as to include a portion of both Algebra and Geometry in their last preparatory year. Students who do not come from diploma schools should take a similar review if they expect to succeed in the study of mathematics in the University.

*Drawing.*—Where the two full units are offered for admission, the work may consist of free-hand drawing, bechanical drawing, and design, a combination of any two of these, or it may consist entirely of any one of the three. Each one-half unit offered must represent work extending through the equivalent of two forty-five minute periods per day for one-half year.

The work to be covered in the first half unit allowed is stated below. To receive the additional one-half, one, or one and one-half units the work must be relatively more advanced, and the student must present a separate outline of each course taken, together with the drawings made.

*Free-Hand Drawing.* — The student should show that he can represent correctly in outline and in light and shade, geometric and simple natural or decorative form. Accuracy of proportion and perspective are essential. The pencil, charcoal, or brush may be used.

*Mechanical Drawing.*—This work should cover:

(a) Exercises giving evidence of skill in the use of instruments and knowledge of materials used. These should consist mainly of the accurate geometrical construction of the more important plane curves, with simple problems involving tangents and normals to the same.

(b) Graded exercises in the orthographic projections of simple geometrical forms and working drawings of some of the more elementary constructions in wood and metal, all fully dimensioned, and in which the conventional signs are properly used.

(c) Exercises in line shading, shade lining, and cross hatching, together with a reasonable skill in lettering.

*Design.*—In this work a student should show some knowledge of the principles of design and the ability to apply them. The exercises should consist of compositions of straight and free curved lines and simple shapes and their use in the design of simple objects, such as a book cover, etc. The exercises may be in black and white, various values, or in color, and may consist in part of objects in wood or metal, and the like.

*Manual Training in Shop Work.* — One unit, optionally prescribed. The work to be accepted for this unit must cover bench work in wood, wood turning, and simple pattern making; forging; chipping, and filing; elementary machine shop work.

Two units allowed. In making up the two units allowed, not more than one unit will be accepted in wood work; wood turning, and pattern making; one unit in machine shop work; one-half unit in forge shop work; one-half unit in foundry.

*Agricultural and Commercial Branches.* — In general, the requirement for a unit in Agriculture or in Commercial Branches involves the completion of a course taken at least five hours per week for one year and accepted for graduation in the high school. The extent and character of the work must be approved by the University Inspector.

### PROVISIONAL ADMISSION

An applicant who presents fifteen satisfactory units but is deficient in not more than one and one-half prescribed units, may, at the discretion of the Faculty, be admitted provisionally; but he must make up his deficiencies at one of the next two regular examinations for admission; no student who has an admission deficiency outstanding at the beginning of his second year of residence is allowed to enter his classes until such deficiency is removed, unless for valid reason an extension of time is granted for its removal.

**ADMISSION ON CREDITS FROM ANOTHER COLLEGE**

Applicants who have taken some portion of the studies required for admission in an approved school or college—not a high school—may receive credit for such work in place of taking examination in the same. The following documents must be presented:

a. An official copy of their credits showing the subjects studied in such school or college, the number of weeks devoted to each, the number of class periods per week, and the standard attained upon completing the same.

b. An official certificate of their regular admission to such school or college.

c. An official certificate of honorable dismissal from such school or college.

Applicants in Engineering should apply in person to the Assistant Dean, Room 255, Engineering building, and applicants in Architecture to the Professor of Architecture, Room 209, Engineering building, September 15, or February 7.

**ADMISSION TO ADVANCED STANDING**

Bachelors of Arts or Science of this University (and graduates of other approved colleges) are admitted without examination to advanced standing as candidates for a degree in Engineering or Architecture.

They should present to the Assistant Dean or to the Professor of Architecture an official certificate of the date of their graduation—not their diploma—and an official copy of the record of the studies they have completed, showing the subjects studied, the number of weeks devoted to each, the number of class periods per week, and the grade attained.

Such students are excused from a considerable portion of the general requirements for graduation (see page 446). The remaining requirements can be completed in two years, if, as an undergraduate, the student has taken the Mathematics and Physics prescribed for Engineering students (see page 446), and Courses 1, 2, and 3 in Drawing (see page 466). A knowledge of differential and integral calculus, analytical mechanics, elementary drawing, and descriptive geometry is required for the advanced work.

The culture imparted by classical or other liberal subjects will be found to have its uses for one engaged in technical work and a thorough study of the pure sciences will prepare engineering students for their work in applied sciences. All the time the student can devote to general studies before taking up specialties will be well spent.

Students who have completed at least one year's work in an approved college, and who bring explicit and official certificates describing their course of study and scholarship, and testifying to



their good character, are admitted to advanced standing without examination except such as may be necessary to determine what credit they are to receive for work done in the college from which they have come.

Such applicants should present a letter of honorable dismissal from college; an official copy of their college record; and an official record of their high school, or other work, preparatory for college, the same as those admitted on diploma.

Students who have not completed a year's college work in an approved college, but before entering these Colleges of the University have pursued studies beyond those required for admission, may be admitted to advanced standing on passing the regular entrance examinations, and examinations in such undergraduate studies as they may ask to be credited with in advance.

Work in Manual Training and Drawing, pursued in a high school is recognized for advanced credit if considered by the instructors in the College of Engineering or Architecture equivalent to the work given in the University. Students desiring advanced standing in Drawing must bring all drawings completed previous to entrance.

Advanced credits must be secured before the student is classified and the record at once placed on file in the Secretary's office. An account once closed cannot be reopened without special permission from the Assitant Dean or the Professor of Architecture.

### **ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE**

Students who are pursuing work in these Colleges and are not candidates for a degree, are designated Special Students.

Students over twenty-one years of age who wish to pursue particular studies in either College and who show by examinations or by the presentation of satisfactory certificates that they are prepared to do good work in the selected courses, may be admitted as special students on the recommendation of the heads of the departments of instruction in which they wish to study. The object of this rule is to enable young men who are beyond the high school age to secure technical training along special lines when they are properly prepared for the work. Two or more years of successful experience as teacher, draftsman, surveyor, engineer, or operative in engineering works, will be given considerable weight in determining the fitness of the candidate. In general, a good working knowledge of English, algebra, and geometry is required in order to succeed in engineering studies. Applicants for admission as special students should send as early as possible to the head of the department concerned letters stating the courses desired.

A two-year course is provided for special students in Architecture. Such students must be qualified for the courses they wish to pursue and must have the approval of the Professor of Architecture. They must be twenty-one years of age, must have had two or more years of experience in architects' offices, and must have a practical knowledge of architectural drawing. Special students who wish to pursue courses in advanced building construction, must present the regular entrance requirements in mathematics.

Special students pay the same fees as regular students. Their work is assigned and regulated by the heads of the departments of instruction in which they register.

A special student may become a candidate for a degree by fulfilling the regular requirements for admission.

A student who is a candidate for a degree cannot become a special student without the permission of the faculty concerned.

### **DIRECTIONS**

Applicants for admission on examination should present their credentials to the Assistant Dean of the College of Engineering, Room 255, in the Engineering building, or to the Professor of Architecture, Room 209, Engineering building, on Monday, September 15, between the hours of 9 and 5, and receive from him papers admitting to the examinations. The result of the examination may be learned at the office of the Secretary, Monday, September 22, 1924.

Applicants for admission on diploma should present their recommendation blanks to the Assistant Dean or the Professor of Architecture not later than September 22, 1924.

When admitted, each student will be furnished with directions for subsequent procedure.

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### **WITHDRAWAL FROM THE COLLEGE**

Before withdrawal from class work, even temporarily, students should report to the Assistant Dean or the professor of Architecture.

Honorable Dismissal will be granted by the Assistant Dean or the Professor of Architecture to students in good standing who present written requests from parent or guardian.

### **RULES GOVERNING PARTICIPATION IN PUBLIC ACTIVITIES**

For the rules governing participation in public activities, see page 115.

## SOCIETIES

Several organizations of students are maintained, aside from the usual literary societies, for the reading of papers and holding discussions in various scientific lines.

*The Engineering Society*, composed of and conducted by students of this College, holds meetings, at which papers of technical interest are read, and reports made upon observations and experiments. A reading room is maintained by the society, accessible to all students of the College. Many engineers of prominence have spoken before the society in past years.

*The Architectural Society*, holds meetings from time to time for hearing addresses by visiting or local speakers, and gives a number of social functions.

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## GRADUATE COURSES

The administration of courses for graduates is in the hands of the Graduate School, under which heading their description will be found. It should be emphasized here, however, that the world is constantly setting higher standards for engineers and architects, and that it is already distinctly advantageous for all students to lay a broad foundation of general courses during their four years of undergraduate work and reserve specialization for a fifth year. The group system of electives described below allows the proper freedom of election on the part of those planning to return for graduate work.

The following degrees are conferred: Master of Science in Engineering or Architecture, Civil Engineer, Mechanical Engineer, Electrical Engineer, Chemical Engineer, Marine Engineer, Aeronautical Engineer, Naval Architect, and Architect.

For details, see the chapter on the Graduate School or write to Dean ALFRED H. LLOYD, for the special announcement of that School.

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## COURSES OF INSTRUCTION

These courses of instruction are subject to change from time to time; those announced for the year 1923-1924 and required for graduation, as stated on pages 441 to 447, together with some advanced elective, and technical courses, are described on the following pages.

The courses given in the College of Literature, Science, and the Arts, and described on pages 199 to 414, are all open as electives to Engineering and Architectural students who are qualified to pursue them with advantage. A student desiring to elect such courses must receive permission from his classifier and from the instructor in charge of the course.

## FEEES AND EXPENSES

*The Matriculation Fee and the Annual Fee must be paid in advance. For the rules governing Second Semester fees and the refund of fees, see page 136.*

**MATRICULATION FEES.**—For Michigan students, \$10; for all others, \$25.

**ANNUAL FEE.**—For Michigan students, \$100 for men, \$95.00 for women; for students not residents of Michigan, \$125.00 for men, \$120.00 for women. These fees cover class instruction, use of libraries, outdoor physical education and admission to all athletic events on Ferry Field, membership in the Michigan Union or Woman's League, as well as medical attention from the University health service and dispensary.

**GRADUATION FEE.**—The fee for graduate is \$10, and the by-laws of the Board of Regents prescribe that no person shall be recommended for a degree until he has paid all dues, including the Graduation Fee. This fee will be received by the Treasurer of the University upon the presentation of a ticket to be secured at the office of the Secretary on the College in which the candidate is enrolled. To receive a degree at Commencement the candidate must be present in person and must have paid the graduation fee at least twenty-five days prior to Commencement Day. Others who have satisfied all the requirements for graduation, including the payment of the graduation fee, will receive their degrees at a subsequent meeting of the Board of Regents.

**SPECIAL CERTIFICATES.**—The fee for this Special Certificate in Geodesy and Surveying is \$2, which must be paid in advance of recommendation.

**LABORATORY FEES.**—The laboratory fees are included in the annual fee but students in laboratory courses in chemistry must make a cash deposit to pay for materials used and for breakage. *Camp Fee.*—A fee of \$10, in addition to the regular tuition for the Summer Session, is required of students who take Course 3 in Surveying.

The fee required for any course must be paid before the work of the course is begun.

**TOTAL FEES.**—The total amount of fees paid to the University during the whole four years' course for matriculation, incidental expenses, materials used, and graduation, is, for Michigan students, about \$425; and for others, about \$550.

Electric power is used throughout, machines being driven in groups rather than individually. The power transmission has been standardized as to size and speed, and is so arranged that maximum flexibility is available.

The general shop offices and drawing room are located on the southwest corner of the second floor. Class rooms are placed adjacent to each shop.

The *Woodworking Laboratory*, 45 by 60 feet, is located on the second floor and is well equipped with a good assortment of tools and machinery. The north side of the shop contains the work benches and portable power tools needed for hand woodwork, together with the tools necessary for pattern making. On the south side carefully arranged are a variety of woodworking machines, making the wood shop a very complete unit. Adjoining the wood shop on the west side is a pattern and a wood storage room, 30 by 25 feet.

The *Metal Working and Heat Treating Laboratory*, 60 by 100 feet, is located on the third floor. The equipment consists of 40 forges with all necessary tools, a power hammer, lathes, shapers, planers, grinders and drilling machines. In the heat treating department are furnaces and quenching tanks for all types of heat-treating. An acetylene welding and cutting outfit and 20 vises are provided.

The *Foundry*, 60 by 100 feet, is located on the fourth floor. A 32-inch cupola and a crucible furnace is provided for melting metals. A core department is equipped with ovens, racks and benches. Four types of molding machines are used. The cleaning equipment consists of a sand blast machine, tumbling barrels and grinding stands. An elevator is provided for raising the metals to the charging level and a two ton electric traveling crane serves the molding floor.

The *Machine Tool Laboratory*, 60 by 130 feet, is located on the first floor and has been very carefully arranged to demonstrate the two types of Machine Shop methods, tool room and production. One part of the shop contains one or more of each of the principal types of machine tools, such as various types of lathes, planers, shapers, drilling, milling and broaching machines, also, others of more special types, together with a great variety of tool room equipment.

In another part of the shop the machines are arranged to give the student a perspective of the machines, tools, and methods used in the manufacture of an article in production.

A third part of the shop is equipped by a grinding room which contains grinding machines and auxiliary equipment. Centrally located is a well organized tool crib, 25 by 36 feet, under the supervision of an attendant, containing quite a complete equipment of small tools for machine and hand use. Adjoining this tool crib and under the same supervision is a production room, 12 by 25 feet, where all material for the production part of the course is stored.

The Instrument Shop is equipped for fine instrument work. In this shop research apparatus for the entire University is constructed and also general service work rendered in the repairs of equipment. This work is handled by a permanent staff of machinists and is quite distinct from the instruction given to students.

### CAMP DAVIS

In 1908 the Regents of the University came into possession of about 1,600 acres of land, lying between Burt and Douglas Lakes, Cheboygan County, Michigan. Nearly half of this area came as a gift from Colonel Charles Bogardus and his wife, Hannah W. Bogardus. In recognition of their kindly interest, the entire area now owned by the University in his locality,—increased by purchase since 1908 to 3,200 acres,—is called the Bogardus Tract.

The camp of the Department of Geodesy and Surveying is called "Camp Davis," in memory of the late Professor Joseph Baker Davis, who established it in 1874 and conducted it for over thirty years. Until 1909 the camp moved from place to place as Professor Davis found land he could use. Permanent improvements were impossible during its early migratory years.

Camp Davis is situated on the south shore of South Fishtail Bay, Douglas Lake, six miles east of Pellston on the Grand Rapids\* and Indiana Railway, thirteen miles west and lightly south of Cheboygan and eight miles northwest of Topinabee. Douglas Lake is about  $4\frac{1}{2}$  miles long, east and west, and from a mile to two miles wide, north and south. Burt Lake lies  $1\frac{3}{4}$  miles south of, and at an elevation of 118 feet below Douglas Lake.

The camp consists chiefly of fifty residence buildings of galvanized sheet steel with concrete floors, arranged in a double row running parallel with the lake shore. The street, 70 feet wide between the buildings, has been improved by the application of gravel in 1916 and 1918. Concrete sidewalks, four feet wide, have been laid through the greater part of the camp. In addition to the residence buildings, the camp boasts of the following improvements: Two concrete buildings used for storing supplies and as a central power station, erected in 1912 and 1913; a harbor excavated in 1912 and remodeled with harbor building in 1921; a kitchen; a dining room; complete sanitary system with septic tank, built in 1915; a water system with concrete reservoir built in 1912; an instrument room, 14 by 28 feet, erected in 1917; two steel office buildings erected in 1921 and 1922; an ice house erected in 1922; a dark room completed in 1923, and a club building for students constructed in 1923.

While the camp has had an independent power plant, which has operated pumps and a small generator since 1914, this is not used at the present time except when power is interrupted from the high tension line of the local power company which was connected with the camp circuits in 1921.

The Bogardus Tract has a varied topography. While most of the valuable timber was removed prior to 1908, a second growth has since sprung up. The tract has been well protected from fire, under University management.

A small store has been maintained at the camp for some years. This includes, also, a telephone booth, a post office, a local bank, and headquarters for the mess accountant.

Students have laid out an athletic field and horseshoe links. They maintain a diving tower and other facilities for bathing and swimming.

A physician from the University Health Service is in attendance each year.

The camp is generally reached by way of Cheboygan, which is also the address for mail (Camp Davis, Route No. 1), freight, and express.

### **MECHANICAL ENGINEERING LABORATORY**

The Mechanical Engineering Laboratory occupies about 13,000 square feet of floor space in the Engineering building. In addition the automobile division occupies a space of some 7,200 square feet in a neighboring temporary building. The very complete and modern Washington Street plant of the University is available for use, and a test of this plant constitutes a regular part of the second course in mechanical engineering laboratory.

The laboratory, as a whole, comprises all the equipment utilized for illustration of the theory involved in Mechanical Engineering and for experimental work of both standard and research nature. Separate laboratory instruction is given along the lines of hydraulic machinery and automobiles, and those parts of the equipment applying especially to these divisions are segregated as far as possible to form the Hydro-Mechanical Laboratory and the Automobile Laboratory. The general laboratory is well equipped with power machines of all kinds, which furnish the means of instruction in the principles of testing. Attention may be called particularly to the thirteen-ton ammonia refrigerating plant, which is practically new and complete in all respects; the 40 h.p. Stirling boiler; very good facilities for the testing of heating and ventilating apparatus; a new 37½ h.p. Fairbanks-Morse oil engine; a new eleven by thirteen Harrisburg Unaflo steam engine; a new C. H. Wheeler surface condenser with Radojet air pump; and very complete and well-selected equipment of instruments and small apparatus.

*The Hydro-Mechanical Laboratory* is equipped with a pair of 600-cubic-foot tanks on scales, a large Duplex pump, a Francis turbine, a Doble tangential water wheel, two Rees Roturbo pumps, and a new Sprague electric dynamometer, as well as much other machinery, and all necessary accessories for testing.

*The Automobile Laboratory* consists of an engine testing section, a dynamometer room, and a section for the display and demonstration of automobiles, motor trucks, and their component parts. The engine testing section contains a complete equipment of engines, selected with a view to affording the student experience with various typical successful types. This section is equipped with prony brakes, water dynamometers, and one fan dynamometer. The dynamometer room contains a complete Diehl electric dynamometer and a 100 h.p. Sprague electric dynamometer, together with special fuel-measuring devices, tachometers, air meters, pyrometers, gas analysis apparatus, manograph, and complete accessories necessary for instructional testing and advanced research work. In the display and demonstration section are gathered together complete operating and cut-out chasses, various types of engines, cut-out transmissions, rear axles, differentials, clutches, carburetors, ignition systems, and other automobile parts and equipment. The apparatus is especially mounted to show its operation and design, and is used as demonstration study and test equipment for the regular automobile courses. It further serves as a permanent educational exhibit to the public.

### PHYSICAL TESTING LABORATORY

The Physical Testing Laboratory occupies two adjoining rooms, 29 x 54 feet and 27 x 54 feet, respectively, on the ground floor of the south wing of the Engineering building and is equipped with apparatus especially designed for testing the strength of materials used in engineering work. The material includes a 50,000 pound capacity Riehle tension and compression machine, a 100,000 pound Olsen testing machine, and a Riehle tension and compression machine of 200,000 pounds capacity. Both these machines are adapted to tensile, compressive and transverse tests, and are run by direct-connected motors. An Olsen torsion machine 240,000 inch-pounds capacity, also equipped with direct connected motor, is used in determining the torsional strength of shafts and axles. Hardness of metals is determined on a standard Brinnell machine. Impact tests are made on an Olsen machine and endurance tests on an Upton Lewis Toughness machine. The cement testing laboratory is equipped for making the ordinary tests of cement and concrete. In addition to scales, sieves, briquet molds, damp ovens, drying ovens, and accessories, there is one briquet testing machine and two traverse-load beam-testing machines, and a special apparatus for testing wheels subjected to lateral blows on the rim. The 200,000-pound machine is adapted to testing beams of reinforced wood, or steel, of any span up to twelve feet, and to testing cables in tension up to six feet.

For illustrating the fundamental effects of heat treatment on the physical properties of steel, the laboratory is equipped with a 12-inch electric furnace, suitable quenching tanks, saws, and a polishing table for preparing specimens of steel for photomicrographing.



### THE HIGHWAY LABORATORY

The Highway Laboratory, which has 11,000 square feet of floor space, is located in the basement of the north wing of the East Engineering Building. There are special laboratories for the testing of the following materials: Cement; concrete; sand, gravel, broken stone and similar materials; rock and paving brick; asphalt cements, tars and oils; bituminous mixtures; and calcium chloride, metals, and paints. The Laboratory also contains rooms for equipment, balances, concrete curing, storage samples, lockers, and showers.

The laboratory is equipped with all the necessary apparatus for the testing of all kinds of non-bituminous and bituminous materials. Among the more important pieces of apparatus and equipment are a four-cylinder Deval abrasion machine, standard brick rattlers, ball mills, a briquette molding machine, Page impact machines, a Dorry hardness machine, diamond core drills, a 200,000-pound compression testing machine, tensile testing machines, apparatus for testing cement, moist closets, Per Se and Ro-Tap sieve shakers, Dulin Rotarex extraction machines, standard penetrometers, ductility machines, viscosimeters, constant temperature baths, Fraes and other types of electric ovens, analytical chainomatic and torsion balances, and field testing apparatus.

### LIBRARY OF HIGHWAY ENGINEERING AND HIGHWAY TRANSPORT

*The Davis Library of Highway Engineering and Highway Transport*, located in Room 1024 of the East Engineering building, is the most complete collection of literature on highway engineering and highway transport in this country. All the most recent books have been purchased, and, in addition, many old volumes which are of interest from a historic point of view, have been secured. Town municipal, county, park, state, and government reports and specifications, many monographs, and complete files of trade publications also form an important part of this library. All technical periodicals which contain articles relative to highway engineering and highway transport are on file, hence the latest literature on the science and art of these subjects is available. The library is equipped with eleven comprehensive indexes covering its books, reports, specifications pamphlets, catalogues of materials and machinery, literature on highway engineering, and literature on highway transport. The library is open to the public on Mondays to Fridays from 8:00 A. M. to 12:00 M. and from 1:30 to 5:00 P. M., and on Saturdays from 8:00 A. M. to 12:00 M.

In addition to the Davis Library, the University Library and the Engineering and Chemical Libraries may be used by advanced or graduate students in highway engineering and highway transport.

### ALEX DOW HYDRAULIC EXPERIMENTAL FLUME

This flume, for conducting experimental research work is hydraulics, is on the Huron River, about one mile from the University campus. It is connected with two of the flood gates at the spillway of the Argo Dam, giving a head of about 10 feet and an available water supply of 250 cubic feet per second. The total length of the flume is 138 feet, the upper end being approximately 8 feet wide and 9 feet deep, while the lower end, 102 feet long, is exactly 2 meters (6.56 feet) wide and 8 feet deep. The flume is equipped with two sets of adjustable baffels, one set being vertical and the other set horizontal. There are five tanks connected to different parts of the flume by 2-inch pipes, above which hook gages are placed, the entire installation being enclosed by a suitable gage house. Above the flume at its upper end is a small frame building which contains a complete equipment for measuring water by the salt solution method and provides shelter for the men engaged in working up experimental data.

The flume is so arranged that the models to be experimented upon may be easily erected or removed, and the arrangement within the flume may be modified to conform to the requirements of any particular experiments. The salt solution equipment provides for the accurate calibration of standard weirs, which in turn may be used for measuring water for other experimental work. The flume is especially adapted to the determination of empirical coefficients such as occur in formulas of discharge for weirs, gates, orifices, and pipes under a wide range of conditions. The large supply of water makes it possible, in many cases, to conduct experiments on a large scale than has hitherto been undertaken.

### ELECTRICAL ENGINEERING LABORATORIES

The Electrical Engineering Laboratories consist of a dynamo laboratory, communication laboratories, and a photometric laboratory.

The *Dynamo Laboratory* contains a full complement of direct and alternating current apparatus of various types and sizes, representative of the leading American manufacturers.

As in all of the electrical laboratory work, special emphasis is here laid upon the development of the student's ability to analyze the phenomena which he observes in the operation of electrical machinery. To this end, and with the aim of developing the personal initiative of the student, a large number of moderate sized machines have been provided in order to give each student intimate contact with the apparatus.

The laboratory is fully equipped with meters and instruments of various ranges, types, and makes. For calibration work there are standard resistances, standard cells, a potentiometer, and meters of the precision type. The equipment also includes two oscillographs with all accessories.

Distribution of power in the laboratories is controlled through a plug and socket system. The system gives great flexibility and requires that all connections be made by the student himself, but provides the means by which the work may be quickly and easily performed.

The laboratory has on exhibit several dynamos of very early types, which are of historic interest.

The *Communication Laboratories* are unusually well equipped for both practical and theoretical experimental study of communication by electrical means.

The University's private branch exchange of some two hundred lines, adjacently located, together with an automatic and magneto exchange in the laboratory, provides excellent facilities for practical study. As the laboratory is unusually well equipped with special instruments of the highest grade, the facilities for theoretical study are good.

Exceptional facilities are provided for the study of radio communication in the radio laboratory. It is equipped with modern medium sized vacuum tubes for experimental work together with all the necessary auxiliary equipment in the way of transformers, condensers, meters, generating apparatus and control equipment.

A radio telephone set of the modern type is available for experimental use so that students of radio engineering may get a first hand knowledge of the design and operation of such a set.

The *Photometric Laboratory* is equipped with three fixed bars provided with the most accurate photometer heads of both equality and contrast types, and suitable auxiliary apparatus, such as lamp rotators; four portable photometers for making surveys of illumination; one precision photometer bar with complete accessories for standardization and investigation; a single mirror selector for making measurements on large light sources. The equipment includes, besides standard lamps, a complete and modern collection of lamps and accessories including mercury, magnetic, and carbon arcs, refractors, reflectors of all varieties in glass and metal, and headlight and flood-light projectors.

The University has a medium sized steam power plant of its own which is available for instructional purposes and is moreover, well situated with regard to both hydraulic and steam power plants of the Detroit Edison Company. Technical inspections of these plants are made in conjunction with the class room work in appropriate courses.

### CHEMICAL ENGINEERING LABORATORIES

The Chemical Engineering Laboratories occupy about 30,000 square feet of floor space in the East Engineering Building. They are arranged so as to be adjacent to the offices of the instructional

staff and to the departmental library and provide unusual facilities for graduate work. There are 17 small research laboratories accommodating from one to four men each in addition to the general laboratories mentioned below.

*General Chemical Engineering Laboratories.*—The study of unit processes is carried out in a group of laboratories averaging 26 by 69 feet and extending through four floors. They have been designed to permit of flexibility of operation, and outlets for steam, gas, air, and electricity have been liberally provided. There is a full complement of storage, reaction, and weigh tanks; scales; pumps; and other accessories necessary for carrying out complete processes. Soft water may be obtained from two Zeolite water softeners and a supply of condensed water nearly as pure as distilled water is also supplied from a storage tank in the attic. The Evaporator Laboratory extends from the basement through the first floor. The principal equipment is a set of evaporators and accessories which are the gift of the Swenson Evaporator Co. It is perhaps the most complete and extensive equipment of its kind in the country. The evaporators include a vertical tube, a horizontal tube, and a semi-film unit. They have a maximum capacity of about 4,000 lbs. water evaporated per hour in each unit. They are completely equipped with such accessories as devices for weighing and controlling feed, removing crystals and measuring condensate and have the greatest possible flexibility to permit their adaption to process development. Facilities for the study of batch and continuous distillation, and of dephlegmation, are available. The equipment consists of three batch stills and one continuous still, and is so designed as to be suitable for investigations of the fundamental principles of fractional distillation and fractional condensation. There is an absorption column which can be filled with various types of tower packing. The filter press equipment consists of a 24-inch washing plate-and-frame press, with an assortment of special frames. There is also a de Laval centrifugal clarifier and filter, and a 10-inch Weston centrifuge. There is a standard 20-foot double deck Swenson-Walker continuous crystallizer; and also a special vertical batch crystallizer. One of the laboratory's tanks is equipped with paddle stirrers and with devices for studying agitation. Facilities are also available for the study of propeller stirrers.

*Metallographic Laboratory.*—The metallographic laboratory occupies a group of six rooms. Liberal facilities are provided for the preparation and examination of specimens. Three photomicrographic outfits and cameras for micrographs, also excellent dark room facilities are provided. For heat treatment and production of alloys gas and electrical furnaces equipped with indicating and recording pyrometers are available. The laboratory is also equipped with hardness, impact and fatigue testing machines.

*Electrometallurgy.*—Excellent facilities are provided for work in electrometallurgy. Direct and alternating current are available over wide ranges in voltage. Direct current is supplied to the laboratory at 220 volts while lower voltages are obtained from a 10 K. W. generator. Director current is also available from a storage battery of 25 cells. Alternating current is supplied at 110 volts by three 50 K. W. transformers. Lower voltages are provided by a 10 K. W. transformer especially designed for the work.

*Electrochemistry.*—Direct and alternating current at 110 volts and direct current from a 5 K. W. generator and from a battery of 25 lead storage cells are available. A Wendt electrometric titration apparatus, conductivity bridges, and the usual complement of electrical measuring instruments are provided for research work. The microstructure of electrodeposits may be studied in the metallographic laboratory.

The *Pyrometric Laboratory* is a large room, 26 x 40 feet, in which ample space is provided for the numerous instruments and set ups which are required for a proper study of this subject. The equipment includes several varieties of thermo couples, millivoltmeters, and potentiometers, an L. and N. optical pyrometer, a Thwing Radiation pyrometer, a transformation point apparatus and specially designed furnaces for the calibration of pyrometers. The laboratory is supplied with abundant electrical service.

The *Gas and Fuel Laboratories* occupy a group of four rooms; a general laboratory for gas analysis; a calorimeter room equipped with bomb calorimeters and gas calorimeters; and two laboratories for advanced students.

The *Ceramic Laboratories* consist of a grinding room, a preparation room, kiln room and laboratory. The grinding and preparation room provide crushers, ball mixers, a three foot dry and wet pan for grinding clays, and mixers, molds, and machines for tempering and preparing clays. The kiln room is supplied with oil and gas fired kilns for burning the ware and test specimens, and with special testing furnaces for studying the properties of clay refractories at high temperatures. Equipment is provided for making standard tests on raw and burned clays and refractories as well as for special research work. A small rotary kiln allows tests on the burning temperature of *Portland cement*, and polarizing microscopes permit microscopic examination of the clinker either in thin sections or in powder. There are special facilities in micrometers and other devices for studying volume changes in cement products after they have reacted with water.

For the study of *Petroleum and Motor Fuels* equipment is at hand for the conduct of investigational work. In addition, the standard equipment for the routine testing of motor fuels, distillates, fuel oils, and lubricating oils is available.

*Pulp and Paper Laboratory.*—The equipment in this laboratory consists of small digestors for cooking soda, sulphate, and sulphite pulps; a diaphragm screen; a beating engine; apparatus for testing the consumption of bleach and a mould for hand-made sheets. Apparatus is also at hand for microscopic and chemical analyses of pulps and papers.

### MARINE AND AERONAUTICAL ENGINEERING LABORATORY

The *Experimental or Naval Tank* is a unique feature of the College of Engineering. The object of the tank is to enable experiments of all kinds, including resistance, propulsion, steering, etc., to be made upon models of ships and propellers. The tank occupies one side of the ground floor of the Engineering building, and is 300 feet long, 22 feet wide, with a depth of water of 10 feet. By means of a false bottom which can be set in varying positions the depth of the water can be changed so that experiments on the effect which shallow water has upon the speed of vessels may be performed.

The tank is spanned by a traveling truck which can be driven at any desired speed. Upon this truck are mounted the necessary dynamometers to which the ship models are attached and which measure the resistance at any speed.

Adjoining the tank is the work shop where the ship models are made. The size of the models used runs from ten to twelve feet in length, and they are usually made of paraffin wax. A clay mould is first made approximately to the shape desired and a canvas core inserted. Melted paraffin is then poured into the mould, and, after cooling, and rough model is transferred to a specially designed cutting machine. This consists essentially of two moving tables or platforms upon one of which is placed the rough model and upon the other the drawing of the lines of the vessel which it is desired to reproduce. The model moves under a pair of revolving cutters which are made to follow the lines upon the drawing. After cutting the model is finally faced up by hand, carefully checked and weighed, and sufficient ballast added when it is placed in the water, to bring it to the desired draft, and displacement.

The power required to drive a full-sized vessel may easily be determined from the model experiment; and systematic investigations upon various forms of vessels are continuously performed.

The tank is also used for testing and calibrating current meters.

*Aeronautics Laboratory.*—For students taking aeronautical courses, facilities are provided in various laboratories of the Engineering College for special investigations of strength of materials and parts of aircraft structure, motor testing, comparative study of resistance of bodies in the naval tank; also studies are made of aerodynamical properties of various bodies and aerofoils in an air current 3 x 3 feet, velocity 40 miles an hour, provided by an air

blower, in connection with which two dynamometers are used. One dynamometer is of a type enabling a simultaneous determination of lift, drag, and center of pressure of aerofoils. The other for determination of thrust and torque of 2 feet diameter propeller models.

A new aerodynamic laboratory is under construction comprising a model shop and two new wind tunnels. One tunnel will be 6 feet in diameter for wind velocities up to 80 miles per hour; the other, 13 inches in diameter for wind velocities up to 450 miles per hour. The tunnels will be equipped with several dynamometers of different types for various types of aerodynamic research.

## DEPARTMENT OF ENGINEERING RESEARCH

### Use of Laboratories for Technical Services

*Date of Establishment.*—The department of Engineering Research was established by action of the Board of Regents, October, 1920.

The action was taken by the Regents upon the request of a number of prominent manufacturers in the State who felt that the University facilities should be made available to the industrial and technical interests in the State to a greater extent than was at that time the case.

*Purpose.*—It is the purpose of this department—"to assist and promote in all proper ways the success and prosperity of most phases of industrial and technical work in the State." (Extract from report approved by Regents.)

*Nature of Organization.*—The organization consists of a Director who reports directly to the Dean of the Colleges of Engineering and Architecture, an Administrative Committee consisting of the heads of the departments of Civil, Mechanical, Electrical, Chemical, and Marine and Aeronautical Engineering and the head of the Department of Architecture, an Advisory Board of 100 manufacturers and technical men in the State selected with reference to location and industry, and an Executive Committee of 17 selected from the Advisory Board.

*Field.*—The department has been established for the purpose of rendering technical service and research to the various industrial and civic interests in the State.

As at present organized the department is not prepared to conduct routine testing to the best advantage. For this work there are several well conducted testing laboratories in the State which are especially prepared to render service of this type because they maintain a trained personnel exclusively for this class of work. The department will render this service however if the same is particularly desired.

The service which the department is especially prepared to render is one in which the problems are of sufficient magnitude to

require the complete or partial services of one or more persons for six months or longer. Problems which involve consultation from various members of the University staff are of a type on which the department is especially prepared to work. Problems which lend themselves to solution through the establishment of fellowships have proved especially satisfactory.

*Charges.*—The University purposes to do this work at the lowest possible charge consistent with the character and quality of the service rendered. No funds have been made available to the University by the State for this work and, therefore, it is necessary that the manufacturers or interests requesting the service meet the direct charges. These direct charges include the cost of the labor, the cost of the materials consumed, the cost of new equipment necessary in case there is need for the same, and a nominal overhead of 20 per cent to cover the upkeep of the testing machinery employed and the administrative expenses of the department.

*Communications.*—All communications for service should preferably be directed to the Director, Department of Engineering Research, University of Michigan, Ann Arbor, Michigan. The office of the Director will be pleased to discuss at any time details pertaining to proposed service and research and furnish estimates with regard to costs.

In further explanation of the facilities stated above, the Regents, in 1913, placed the Highway Laboratory at the service of the cities, villages, counties, and highway officers of the state for the testing of brick, stone, gravel, and other highway materials without charge other than the expense of shipment of samples. Tests are now being made of road materials and full records are being kept of this work.

### OTHER LABORATORIES, LIBRARIES, AND MUSEUMS

For description of other University laboratories, libraries, and collections for the study of art, archæology, ethnology, mineralogy, geology, paleontology, zoölogy, etc., and for general information concerning the University, see page 69 to 87.

### VISITS OF INSPECTION

The educational value of visits of inspection is well recognized and inspection trips are regularly made in connection with many of the courses. The wonderful industrial growth of Detroit and Toledo during the last decade has made those cities centers where large and modern illustrations of almost all types of engineering structures and processes may be seen. Inspection trips are regularly made by all second year Engineering students in connection with their course in Materials of Construction. Smaller parties of more advanced students visit places of especial professional interest. Trips of several days' duration are made during the Spring recess.



### **THE MENTOR AND ASSEMBLY SYSTEM**

When the student enters the College of Engineering he is at once assigned to a mentor, or faculty adviser, and students thus assigned are to continue with the same mentor throughout their college course. This mentor is not appointed merely to advise the student with respect to his studies but to take the place of an elder brother on the faculty to whom the student may go and talk over freely any phase of his college life. To help the mentor advise each student in his group with regard to his studies a card system of reports is used which gives the mentor every student's grades six weeks after the beginning of the semester and four weeks before the final examinations.

Every week all freshmen of the College of Engineering are brought together in the Freshman Assembly. Here they listen to a talk by the Dean, or some speaker secured by him, and have their class meeting. The Sophomore, the Junior, and the Senior Assemblies meet four times a semester and are regarded as invaluable not only to the mentor system but for purposes of class organization.

### **THE HONOR SYSTEM**

The students of the College of Engineering have adopted the following system: All examinations and written quizzes in the College are held under the Honor System, the object of which is to create a standard of honor which is essential to a successful engineer and a good citizen. Students are expected to uphold the system or declare their objections to it, after having been duly instructed in all the rules governing the system. The instructor does not remain in the room during an examination. The students are placed upon their honor to refrain from all forms of cheating and to reprimand a fellow student who acts suspiciously, and, in case he does not take heed, to report him to the Honor Committee, which consists of one student elected annually from each class in the College of Engineering, and one from the College of Architecture, each member to serve two years. Every student is requested to write and sign the following at the end of his examination paper:

"I have neither received nor given aid during this examination."

### **WOMEN STUDENTS**

All questions relating to the living conditions of undergraduate women students enrolled in the Colleges of Engineering and Architecture come under the jurisdiction of the Dean of Women of the University. Matters of scholarship and attendance are handled by Assistant Dean Patterson, for Engineering, and Professor Lorch for Architecture. Assistant Secretary Green acts as mentor for the women in Engineering and Architecture.

Applications for rooms should be made to Dean Jean Hamilton, who has entire charge of the matter of housing conditions of the women students of the University.

### THE GROUP SYSTEM OF ELECTIVE STUDIES

In July, 1912, there went into effect a complete revision of all the programs in Engineering, by which it was made possible for a student in his senior year to have a much wider range of elective work than formerly. The new system provided that of the 140 hours of credit required for graduation, 125 to 128 hours only are prescribed and 12 to 15 hours may be elected. These elections may be made up from the groups of studies outlined below or from other courses approved by the head of the department of specialization.

The Group System allows the student to receive his instruction in the advanced subjects from a specialist. It also permits a student desiring to take up a fifth year of residence to specialize in some particular branch of engineering. A student in any group will be allowed to elect work in the other departments of engineering or in the other Colleges or Schools of the University, subject to the approval of the Head of the department. A student desiring to obtain special scientific knowledge or special business training by building on the fundamental subjects of engineering may be allowed to elect scientific courses or courses in Economics or Business Administration under the direction and approval of the Head of his department.

The group of studies and the scope of the work which they cover are given in the following:

#### CIVIL ENGINEERING GROUPS

- (A) *Structural Engineering*.—Covering the subjects of Roof Trusses, Arches, Bridges, Structural Framework of Buildings, and other structures.

Course in theory and design of steel, concrete, and masonry are given by the department of Civil Engineering.

Courses in strength and resistance of materials are given by the department of Engineering Mechanics.

Courses in metallurgy, micro-metallurgy, and chemical technology of building material are given by the department of Chemical Engineering.

- (B) *Hydraulic Engineering*.—Covering the subjects of Hydro-Electric Power Development, Irrigation and Drainage, and Rivers and Harbors.

Courses in hydraulics, hydrography, and in theory and design of the different branches of hydraulic engineering are given by the department of Civil Engineering.

Courses in hydraulic machinery, water turbines, turbine design, and pumping machinery are given by the department of Mechanical Engineering.

Courses in electrical machinery, generating stations, and electrical distribution are given by the department of Electrical Engineering.

(C) *Transportation Engineering.*

Courses in railway location, construction and maintenance, railway design courses, and history of transportation are given by the department of Civil Engineering.

Surveying and advanced railway surveying courses are given by the department of Surveying.

Courses in elements of accounting, railway accounting, railway operation, railway finance, railway tariffs, and economics are given by the department of Economics.

Courses in signalling and electrical engineering are given by the department of Electrical Engineering.

(D) *Sanitary and Municipal Engineering.*—Covering the subjects of public water supplies, water purification for municipal and industrial purposes, city sewerage and drainage, the treatment and disposal of city sewerage and industrial wastes, and general municipal and industrial sanitation.

Courses in theory, design, and laboratory are given by the department of Civil Engineering.

Courses in bacteriology, water analysis, and hygiene are given in the Medical School.

Courses in testing materials are given by the department of Engineering Mechanics.

Courses in heating and ventilation are given by the department of Mechanical Engineering.

Courses in city surveying are given by the department of Surveying.

Courses in economics and municipal administration are given by the department of Economics.

(E) *Highway Engineering and Highway Transport.*

Courses in highway engineering fundamentals, economics and theory, highway engineering design courses, laboratory courses in bituminous and non-bituminous paving materials, advanced courses in the construction and maintenance of earth, gravel, and broken-stone roads, bituminous surfaces, bituminous pavements, cement concrete pavements and brick pavements, courses in highway bridges, specifications and contracts, mu-

municipal engineering, economics, management, methods, and legislation pertaining to highway transport and highway engineering and highway transport seminar courses are given by the department of Civil Engineering.

Courses in automobiles and motor trucks, mechanical handling of materials, and scientific management are given by the department of Mechanical Engineering.

Municipal surveying courses are given by the department of Surveying.

Courses in the elements of economics and accounting are given by the department of Economics.

Courses in geology are given by the department of Geology.

- (F) *General Engineering Science*.—This group is specially arranged to permit civil engineering students who are candidates for the bachelor's degree, to secure the fundamental training in civil engineering and to pursue advanced elective work in mathematics, physics, astronomy, mechanics, or chemistry.

#### MECHANICAL ENGINEERING GROUPS

- (A) *Steam Power Engineering*.—This group may include all the elective courses in Mechanical Engineering relative to steam prime movers, and auxiliary machinery found in steam power plants, including steam boilers, steam turbines, steam engines, coal handling machinery, pumps and air compressors, power house design, and construction.
- (B) *Internal Combustion Engineering*.—This group includes courses in Mechanical Engineering relating to internal combustion engines and gas producers, their design, construction, and operation.
- (C) *Hydro-Mechanical Engineering*, which may include courses in hydraulic machinery such as turbines, reciprocating pumps, and centrifugal pumps. A special laboratory is maintained for the testing of hydraulic machinery.
- (D) *Heating, Ventilating, and Refrigerating Engineering*.—Special courses are given in Heating, Ventilation, and Refrigeration, including the design of heating and ventilating plants. The mechanical laboratory has special apparatus designed for conducting tests in Heating and Ventilation; it also has a refrigerating plant used entirely for experimental purposes.
- (E) *Industrial Engineering*.—This group is arranged to provide for students who wish to prepare themselves for the business side of manufacturing, or to study methods of management or production in manufacturing plants. It includes courses in

shop management, motion study, design of shop machinery, and business administration. The engineering shops are used for experimental work in these lines.

- (F) *Automobile Engineering*.—Special work is given in the design, construction, and operation of the Automobile, which includes courses in engine and chassis design. A special laboratory is maintained for the experimental study of the Automobile. Every student is required to elect an advanced design course in some particular group, and he must have the prerequisites for the design course which he elects. Courses M.E. 9a and M.E. 25a will not be accepted as the required design course.

### **ELECTRICAL ENGINEERING GROUPS**

#### **Choice of Elective Work**

In the selection of his elective work the student will do well to be guided in his choice by the general philosophy controlling the work of the department. The aim of the staff in Electrical Engineering is to help the student toward the development of a sense of proportion, of ability to observe, visualize, and analyze rather than to impart specific and empirical information.

With this aim in view the staff in Electrical Engineering advises the student to choose his elective work from the following classes on the bases indicated.

For the undergraduate, elections in pure science, economics, history, philosophy and the liberal arts are urged in the belief that such broad elections will fit the engineering graduate to take his place in organized society and will aid him to an unusually broad perspective of his profession and life. It is the belief of the staff that such preparation should fit the student for an ultimate position of leadership in his profession.

Next in importance after the above class of subjects come fundamental courses in other branches of engineering or in engineering science. It is felt that a broad election in the engineering field is to be preferred to too narrow specialization during the undergraduate course.

The specialized and advanced courses in Electrical Engineering are particularly designed for graduate or fifth year work and every strong student is urged to stay for such a fifth year leading to an advanced degree. It is felt however that this work should be preceded by the work outlined above.

### **CHEMICAL ENGINEERING GROUPS**

- (A) *Metallurgical Group*.—This group contains options from the advanced courses in metallurgy and chemical engineering machinery in the department of Chemical Engineering; the testing of materials in the department of Engineering Mechanics; and courses in mineralogy and geology.

- (B) *Gas Engineering Group*.—This group contains options from the courses in gas manufacture and chemical engineering machinery in the department of Chemical Engineering; gas engines, power plants, and the valuation of public utilities in the department of Mechanical Engineering; electrical distribution and illumination in the department of Electrical Engineering; and business organization and management in the department of Economics.
- (C) *Organic Industrial Group*.—This group contains options from the course in the department of Chemical Engineering covering the fundamental organic chemical industries along with options from the courses in theoretical and organic chemistry in the department of Chemistry; bacteriology in the Medical School; water purification and sewage disposal in the department of Civil Engineering; and courses in Economics.
- (D) *General Manufacturing Group*.—This group contains options from the courses in chemical engineering machinery in the department of Chemical Engineering; from courses in mechanical engineering, electrical engineering, and economics; and eight hours of free electives.
- (E) *Pulp and Paper Manufacturing Group*.—This group contains options from the courses in pulp and paper manufacture and the courses in chemical engineering machinery in the department of Chemical Engineering; from courses in identification of woods in Forestry and in the microscopic study of woody plants in Botany; from courses in Electrical Engineering; Mechanical Engineering; Hydraulics; Civil Engineering; and Economics.

## MARINE AND AERONAUTICAL ENGINEERING GROUPS

- (A) *Naval Architecture*.—The courses in this department are arranged for those who wish to devote the principal part of their studies to the design and construction of ships. It also includes courses in the department of Engineering Mechanics, Mechanical Engineering, and Civil Engineering.
- (B) *Marine Engineering*.—The courses in this department are arranged for those who wish to specialize more in the design of the machinery connected with ships. Courses in steam turbines, gas and oil engines, and hydraulic machinery are given in the department of Mechanical Engineering, and courses in electrical machinery in the department of Electrical Engineering.

- (C) *Aeronautical Engineering*.—Both theory and design of aeronautical structures are taught in these courses. Properties of the atmosphere; aerodynamics; resistance and propulsion, stability and operation of all kinds of air craft, as well as the elements of motors, propellers, aerodromes, etc., are taken up and followed by courses in which designs illustrative of these principles are prepared.
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## SEQUENCE OF STUDIES

The work of the first year of the four-year curricula leading to the degree of Bachelor of Science in Engineering is the same for all students in the College of Engineering. At the end of the first year, all Engineering students elect either the civil engineering, the mechanical engineering, the electrical engineering, the chemical engineering, the marine engineering, or the aeronautical engineering curriculum.

There is a limited opportunity for electives, as outlined in the description of the group system, and credit obtained in advance at entrance may leave a place for further elections. After the first year the student may take work to the amount of *eighteen hours per week*, as arranged by the classification committee; but *he may wisely, in some cases, take a smaller number of hours*, if he can in that way do better work.

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## REQUIREMENTS FOR GRADUATION

### THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING

To earn the degree of Bachelor of Science in Engineering, the student must secure *one hundred and forty hours of credit\** in a prescribed curriculum, as given below, eight hours of which can be

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\* The explanation of the term Hour of Credit, and for further information about the courses prescribed for graduation, see Engineering Announcement.

earned in one summer session. The diploma given indicates the line of study pursued. A time limit is not fixed; but four years and one summer session are usually needed for the work required for the degree.

### Hours of Work Required for the Degree of Bachelor of Science in Engineering

SUBJECT	Civ.	Mch.	Elec.	Chm.	Mar.	Aero.	Geod. Surv.
English .....	6	6	6	6	6	6	6
Language and Groups.....	16	16	16	16	16	16	16
Mathematics .....	18	18	18	18	18	18	18
Physics .....	10	10	14	10	10	10	10
Chemistry .....	5	5	5	30	5	5	5
Astronomy .....	2	0	0	0	0	0	8
Forestry .....	0	0	0	0	0	0	2
Geology .....	3	0	0	0	0	0	3
Drawing .....	8	8	8	8	8	8	8
Shop Practice .....	2	10	2	2	2	10	2
Engineering Mechanics .....	12	12	12	7	12	12	9
Civil Engineering .....	20	3	3	0	3	3	8
Mechanical Engineering .....	4	27	4	7	24 or 18	21	4
Electrical Engineering .....	4	4	33	4	4	4	4
Chemical Engineering .....	3	3	3	19	3	3	3
Marine Engineering .....	0	0	0	0	15 or 21	0	0
Aeronautical Engineering .....	0	0	0	0	0	14	0
Geodesy and Surveying.....	15	2	2	2	2	2	24
Group Options .....	12	15	14	13	12	8	0
†Military Science and Tactics..	0	0	0	0	0	0	0
Total.....	140	140	140	140	140	140	140

### COMBINED COLLEGIATE AND ENGINEERING CURRICULUM

An arrangement has been entered into between Albion College and the College of Engineering of the University, whereby students who satisfactorily complete three years of work at Albion, including certain specified course, may enroll in the College of Engineering, and receive the degree of Bachelor of Arts from Albion College at the end of their first year of residence at the University and the degree of Bachelor of Engineering at the end of the following year. The details of this course will be given in the Announcement of the College of Engineering.

A similar arrangement has been made with Olivet College.

† May be substituted for other courses with the approval of Heads of Departments.



**FELLOWSHIPS IN CIVIL ENGINEERING**

The *Roy D. Chapin Fellowship in Highway Transport*.—This Fellowship is offered to provide for the investigation of an approved subject relative to Highway Transport. It pays the sum of \$250 with an allowance of \$50 for expenses. Awarded to Arthur William Einstein, B.S.(M.E.).

The *Roy D. Chapin Fellowship in Highway Engineering*.—This Fellowship is offered to provide for the investigation of an approved subject relative to hard surfaced roads and pavements. It pays the sum of \$250 with an allowance of \$50 for expenses. Awarded to Moray Fraser Macnaughton, B.S.(Ch.E.).

*Two Detroit Edison Company Fellowships in Highway Engineering*.—These Fellowships are offered for the investigation of approved subjects relative to moderate costs of country roads. Each Fellowship pays the sum of \$250 with an allowance of \$50 for expenses. Awarded to Otto Vincent Adams, B.S.(C.E.) and Albert Joseph Bedard, B.S.(C.E.).

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**COURSES OF INSTRUCTION**

The courses offered for the year 1923-1924 are described below. The amount of credit toward graduation assigned to each course is indicated by the expressions *one hour*, *two hours*, etc.

**AERONAUTICAL ENGINEERING**

Professors SADLER, PAWLOWSKI, Mr. STALKER.

1. General Aeronautics. Lectures and recitations. *Two hours credit*. First semester.

An introductory course giving the essential principles of aeronautic, (balloons, dirigibles, ornithopters, helicopters, aeroplanes, helicopters, and kites), history of flight and description of modern aircraft.

Open to all students.

2. Theory of Aviation. Lectures and recitations. *Two hours credit*. Second semester.

The course deals with the following questions: properties of the air, general discussion of aerodynamics, aerodynamical properties of planes and various constructive elements of an aeroplane, analysis of performance, equilibrium, and stability of aeroplanes, air currents. In this course each student makes a complete analysis of performance of a given aeroplane, as well as a determination of its stability.

Must be preceded by Courses 1, E. M. 2 and E. M. 3.

3. Theory and Design of Propellers. Lectures, recitations, and drawing. *Three hours credit.* First semester.

Theory of propellers and analysis of propeller performance on the Drzewiecki system; Eiffel's method of propeller analysis and graphical method of determining propellers for specified conditions; analytical and graphical methods of investigating the strength of propellers and influence of gyrostatic moments in quick turns. The student will design a propeller and analyze the distribution of stresses in the blades.

Must be preceded or accompanied by Course 2.

4. Aeroplane Design. Lectures and recitations. *Two hours credit.* First semester.

This course includes the investigation of the design of the aeroplane from the aeronautical and strength standpoints. The strength and design of all the details are discussed and a completed design prepared.

Must be preceded or accompanied by Course 3, and preceded by M. E. 6 and C. E. 2.

- 4a. Aeroplane Design. Continuation of preceeding course. Drawing only. *Two hours credit.*

5. Aerodynamic Laboratory. *One hour credit.* Second semester.

An elementary course covering use of instruments, investigation of aerodynamical properties of the various combinations of bodies and aerofoils used in aeroplanes and airships, test of propellers.

Must be preceded or accompanied by Courses 2 and 3, and preceded by M. E. 7.

6. Design of Aeronautical Motors. Lectures and drawing. *Two hours credit.* Second semester.

Complementary course to M. E. 15 or M. E. 30, dealing with special features of the aeronautical motors, more refined methods of cam design, analysis of vibrations and balancing of motors, critical study of various types of motors, and complete general plans of a motor or certain type are prepared.

Must be preceded by M. E. 15 or M. E. 30.

7. Theory of Balloons and Dirigibles. Lectures and recitations. *Two hours credit.*

Study of equilibrium and stability of spherical balloons and dirigibles; description of French, German, Italian, British, and American types; resistance and propulsion, stability of dirigibles; operation and maintenance of balloons and dirigibles.

Must be preceded by Courses 1, 2, and 3.

8. Design of Balloons and Dirigibles. Lectures and drawing. *Four hours credit.*  
Investigation of the design of a balloon and a dirigible from the aeronautical and strength standpoints. Questions of strength and design of all the details of the non-rigid, semi-rigid, and rigid types are discussed and complete general plans of one type are prepared.  
Must be preceded by Course 7.
9. Theory and Design of Kites. Lectures, recitations, and drawing. *Two hours credit.*  
Critical study of various types of man-carrying kites and the launching devices. Investigation of the design from the aeronautical and strength standpoint. Completed design of a kite train of one type is prepared.  
Must be preceded by Course 7.
10. Design of Aerodromes and Hangars. Lectures, recitations, and drawing. *Two hours credit.*  
Planning and equipment of aerodromes and aero-ports; construction of transportable, stationary, revolving, and floating hangars. Complete general plans of one type are prepared.  
Must be preceded by Courses 2 and 7.
11. Advanced Stability. Lectures and recitations. Advanced study of more complicated phenomena of stability according to Bryan, with Bairstow's applications of experimentally determined resistance derivatives and rotary coefficients.  
Must be preceded by Course 2 and Mathematics 4b (Differential Equations).
12. Seminary. Reading and reports on selected aerodynamical and aeronautical problems. Credit to be arranged. Open only to graduates and seniors who receive special permission. A reading knowledge of French and German is most desirable.
13. Advanced Design. Continuation of Course 4a, taking up some of the more complex or special problems. Credit to be arranged.  
Open primarily to graduates.
14. Research. Continuation of Course 5, offering an opportunity for students to pursue advanced experimental and analytical investigations of any problems in connection with aeronautics. The work of the course consists of investigations for securing data on the more difficult problems of aeronautics and mathematical interpretation of the results. Credit to be arranged.  
Must be preceded by Mathematics 57 and 58. Open primarily to graduates. A reading knowledge of French and German is desirable.

# ASTRONOMY

For a description of all courses offered in the department of Astronomy, see page 201.

Courses 2a and 3 treat of the theory and practice of making and reducing astronomical observations. These courses require day and night work at the Observatory during a portion of the semester.

Course 3E is prescribed for students in Civil Engineering in the second semester, sophomore year.

## FIRST SEMESTER

1. General Astronomy. The Solar System. Three sections. *Three hours credit.* Professor CURTISS, and Assistant Professor RUFUS.

A descriptive course, including the fundamental principles of Astronomy, and a presentation of the leading facts respecting the sun, moon, planets, and comets. Occasional lantern illustrations.

2. General Astronomy. Stars and Nebulæ. One section. *Three hours credit.* Assistant Professor RUFUS.

A general descriptive course in stellar and nebular astronomy. Occasional lantern illustrations. May be taken in continuation of Course 1, or independently.

- 2a. Observational Astronomy. One Section. *One hour credit.* Assistant Professor ROSSITER.

Constellation studies and telescopic examinations of the heavenly bodies; selected problems with the celestial globe and the equatorial telescope.

3. Practical Astronomy. *Two hours credit.* Assistant Professor RUFUS.

The elements of Spherical Astronomy with practical applications. Theory of the extant and transit and their use in the determination of time, latitude, longitude, and azimuth. The observational work at the University in connection with the course will be varied to suit the needs of students from different departments.

- 3E. Spherical Astronomy. *Two hours credit.* Three sections. Assistant Professor ROSSITER.

A brief resumé of Descriptive Astronomy followed by a thorough drill in the principles of Spherical Astronomy and computation.

#### SECOND SEMESTER

1. General Astronomy. The Solar System. One section. *Three hours credit.* Assistant Professor RUFUS.  
A descriptive course, including the fundamental principles of Astronomy, and a presentation of the leading facts respecting the sun, moon, planets, and comets. Occasional lantern illustrations.
2. General Astronomy. Stars and Nebulæ. Three sections. *Three hours credit.* Professors HUSSEY and CURTISS, and Assistant Professor RUFUS.  
A general descriptive course in stellar and nebular astronomy. Occasional lantern illustrations. May be taken in continuation of Course 1, or independently, as desired.
- 2a. Observational Astronomy. Two sections. *One hour credit.* Assistant Professor ROSSITER.  
Constellation studies and telescopic examinations of the heavenly bodies. Selected problems with the celestial globe and the equatorial telescope. Observational work during the day and night at the Observatory.
- 3E. Spherical Astronomy. *Two hours credit.* Three sections. Professor CURTISS, Assistant Professor RUFUS, and Assistant Professor ROSSITER.  
A brief resumé of Descriptive Astronomy followed by a thorough drill in the principles of Spherical Astronomy and computation.
- [22. Navigation. *Three hours credit.* Professor CURTISS.  
The principles of piloting, dead reckoning, and nautical astronomy, with appropriate observatory practice.  
Omitted in the year 1923-1924.]

#### SUMMER SESSION OF 1924

(See College of Literature, Science, and the Arts.)

### CHEMICAL ENGINEERING

#### FIRST SEMESTER

1. Engineering Materials. Lectures and recitations. *Three hours credit.* Professor A. H. WHITE, Assistant Professor WOOD, and Mr. GENIESSE, Mr. CARR, and Mr. KENNEDY.  
Prerequisite: Course 2E in Chemistry.
2. Fuels and their Utilization. Lectures and recitations. *One hour credit.* Mr. BROWN.  
Prerequisite: This course must be preceded or accompanied by Course 1 in Chemical Engineering and by Course 2E in Physics.

4. Chemical Technology of the Inorganic Industries. Lectures and recitations. *Two hours credit.* Assistant Professor BAKER.  
Prerequisite: Courses 2 in Chemical Engineering, Course 8 or 8E in Chemistry, and Course 2E in Physics.
5. Chemical Technology of the Organic Industries. Lectures and recitations. *Four hours credit.* Professor LESLIE.  
Prerequisite: Courses 2 and 4 in Chemical Engineering and Courses 7 and 8 or 8E in Chemistry.
6. Metallurgy of Iron and Steel. Lectures and recitations. *Two hours credit.* Assistant Professor WOOD.  
Prerequisite: Courses 1 and 2 in Chemical Engineering or Course 1 in Chemical Engineering and Course 3 in Mechanical Engineering.
7. Metallurgy of Non-ferrous Metals. Lectures and recitations. *Two hours credit.* Assistant Professor UPTHEGROVE.  
Prerequisite: Course 2 in Chemical Engineering or Course 1 in Chemical Engineering and Course 3 in Mechanical Engineering.
8. Metallography. Lectures and laboratory work. *Two hours credit.* Assistant Professor UPTHEGROVE.  
Prerequisite: This course must be preceded by Course 6 in Chemical Engineering and Course 8 or 8E in Chemistry or Course 2 or 6 in Engineering Mechanics.
9. Technical Examination of Gas and Fuel. *Two hours credit.* Mr. GENIESSE, Mr. CARR and Mr. BROWN.  
Prerequisite: This course must be preceded or accompanied by Chemical Engineering 2.
10. Technical Examination of Gas, Fuel, and Water. *One hour credit.* Mr. BROWN and Mr. CARR.  
Special course for mechanical engineers. Not open to chemical engineers.
12. Special Problems. Largely laboratory work. *Three to eight hours credit.* THE CHEMICAL ENGINEERING STAFF.  
Prerequisite: Courses 1, 2, and 4 in Chemical Engineering; with Course 5 in Chemical Engineering, and Chemistry 7 and 7a in addition if the subject involves organic chemistry; and Chemical Engineering 7 or 8 for metallurgical problems. A reading knowledge of French or German (preferably German) is also required.
13. Evaporation, Filtration, and Transportation of Liquids. *Two hours credit.* Professor BADGER.  
Prerequisite: Courses 1, 2 and 4 in Chemical Engineering.

15. Seminary. Reading and reports on selected subjects. *Two hours credit.* Professor LESLIE.  
Open only to graduates and seniors who receive special permission. A reading knowledge of German or French is required.
21. Special Laboratory Work. *Three to eight hours credit, both semesters.*  
This is research work along special lines. These courses are open only to graduates and seniors who receive special permission.
  - a. The Constitution of Steel. Professors E. D. CAMPBELL and A. E. WHITE.  
Research work on the constitution of steel as influenced by chemical composition, and heat and mechanical treatment.
  - b. Hydraulic Cements. Professor A. H. WHITE.  
Research work on the properties of hydraulic cements as influenced by chemical composition, temperature of burning and reaction with water.
  - c. Gas Manufacture. Professors A. H. WHITE and LESLIE.  
Problems relating to the manufacture, properties, and uses of coal gas, water gas, oil gas, and producer gas.
  - e. Evaporation. Professor BADGER.  
Work in the Evaporator Laboratory on the design of evaporators and on problems connected with handling liquids on the commercial scale.  
Should be preceded or accompanied by Course 13.
  - f. Advanced Metallurgy (Ferrous). Professor A. E. WHITE and Assistant Professor WOOD.  
Advanced work on the structure and properties of iron and steel.
  - j. Advanced Metallurgy (Non-ferrous). Assistant Professor UPTHEGROVE.  
Advanced work on the structure and properties of non-ferrous metals and alloys.
  - k. Petroleum and Motor Fuels. Professor LESLIE.  
A study of problems connected with the distillation, cracking, and refining of petroleum and its products.
  - l. Motor Fuel Utilization. Professor LESLIE.  
A study of the problems involved in the utilization of gasoline and other motor fuels.
  - m. Distillation. Professor LESLIE and Assistant Professor BAKER.  
Work on the theory, design, and performance of distillation equipment.

- n. Cast Metals. Assistant Professor H. L. CAMPBELL.  
Investigations on processes for producing metal castings.  
Prerequisite: Course 6 in Chemical Engineering, and Course 2E in Physics.
24. Pyrometry and Furnace Control. *Two hours credit.* Assistant Professor WOOD.  
Prerequisite: Course 6 in Chemical Engineering and Course 2E in Physics.
26. Advanced Ferrous Metallurgy. *Two hours credit.* Professor A. E. WHITE.  
Prerequisite: Courses 6 and 8 in Chemical Engineering.
27. Design of Chemical Engineering Machinery. Drafting and conferences. *Two or more hours credit.* Professor BADGER.  
Prerequisite: This course must be preceded or accompanied by Course 13 in Chemical Engineering, and preceded by Course 2 in Mechanical Engineering.
28. Equipment and Processes for Drying, Distillation, Gas Absorption and Extraction. *Two or three hours credit.* Assistant Professor BAKER.  
A study of the fundamental theory of drying, distillation, gas absorption, and extraction. This is supplemented by a critical description study of apparatus now in common use.  
Prerequisites: Must be preceded by Courses 4 and 5 in Chemical Engineering.
29. Chemical Engineering Laboratory. *Two to five hours credit.* Professor BADGER.  
A series of tests on various types of chemical engineering equipment training. This course is designed for students who wish training of this kind without concentrating on one problem.
30. Seminary in Metallurgy. *Two hours credit.* Assistant Professor UPTHEGROVE.  
Reading and reports on metallurgical subjects. Only open to graduates and seniors who receive special permission. *Two hours credit.*
34. Pulps and Paper Manufacture. *Two hours credit.* Assistant Professor HAYWARD.  
Open only to graduate students.

SECOND SEMESTER

1. Engineering Materials. Lectures and recitations. *Three hours credit.* Professor A. H. WHITE. Assistant Professor WOOD and Mr. GENIESSE, Mr. CARR and Mr. KENNEDY.  
Prerequisite: Course 2E in Chemistry.



2. Fuels and their Utilization. Lectures and recitations. *One hour credit.* Mr. BROWN.  
Prerequisite: This course must be preceded or accompanied by Course 1 in Chemical Engineering and Course 2E in Physics.
4. Chemical Technology of the Inorganic Industries. Lectures and recitations. *Two hours credit.* Assistant Professor BAKER.  
Prerequisite: Course 2 in Chemical Engineering, Course 8 or 8E in Chemistry, and 2E in Physics.
5. Chemical Technology of the Organic Industries. Lectures and recitations. *Four hours credit.* Professor LESLIE.  
Prerequisite: Courses 2 and 4 in Chemical Engineering, and Courses 7, and 8 or 8E in Chemistry.
6. Metallurgy of Iron and Steel. Lectures and recitations. *Two hours credit.* Assistant Professor WOOD.  
Prerequisite: Courses 1 and 2 in Chemical Engineering; or Course 1 in Chemical Engineering and Course 3 in Mechanical Engineering.
8. Metallography. Lectures and laboratory work. *Two hours credit.* Assistant Professor UPTHEGROVE.  
Prerequisite: This course must be preceded by Course 6 in Chemical Engineering and by Course 8 or 8E in Chemistry or Course 2 or 6 in Engineering Mechanics.
9. Technical Examination of Gas and Fuel. *Two hours credit.* Mr. GENIESSE, Mr. CARR and Mr. BROWN.  
Prerequisite: This course must be preceded or accompanied by Chemical Engineering 2.
10. Technical Examinations of Gas, Fuel, and Water. *One hour credit.* Mr. BROWN and Mr. CARR.  
Special course for mechanical engineers. Not open to chemical engineers.
12. Special Problems. Largely laboratory work. *Three to eight hours credit.* The Chemical Engineering Staff. Same as Course 12 the first semester.
14. Machinery and Processes for Conveying Grinding and Mixing. Lectures and recitations. *Two hours credit.* Professor BADGER.  
Prerequisite: Courses 1, 2, and 4 in Chemical Engineering.
15. Seminary. Reading and Reports on Selected Subjects. *Two hours credit.* Professor LESLIE.  
Open only to graduates and seniors who receive special permission. A reading knowledge of French and German is required.
16. The Manufacture of Illuminating and Fuel Gases and Motor Fuels. *Two hours credit.* Professor LESLIE.

The larger part of the time will be devoted to the study of the problems involved in the manufacture and purification of coal gas and water gas. A smaller portion of the time will be given to the study of produce gas, special gases, and motor fuels.

Open to seniors and graduate students.

18. Metallography of the Non-ferrous Metals. *Two hours credit.* Assistant Professor UPTHEGROVE.

A study of the microscopic structure of the common non-ferrous metals and alloys, and of the effect on their structure and properties of heat treatment, mechanical work and composition.

Prerequisite: Courses 7 or 8 in Chemical Engineering.

21. Special Laboratory Work. *Five to eight hours credit.* This is research work along special lines. These courses are open only to graduates and seniors who receive special permission.

The same subjects are offered as in the first semester.

23. Design of Chemical Plants. Lectures and recitations. *Two hours credit.* Professor BADGER.

Prerequisite: Must be preceded by Course 13, and preceded or accompanied by Course 14 in Chemical Engineering and Course 2 in Mechanical Engineering.

24. Pyrometry and Furnace control. *Two hours credit.* Assistant Professor WOOD.

Prerequisite: Course 6 in Chemical Engineering, and course 2E in Physics.

26. Advanced Ferrous Metallurgy. *Two hours credit.* Professor A. E. WHITE.

Prerequisite: Courses 6 and 8 in Chemical Engineering.

27. Design of Chemical Engineering Machinery. Drafting and conferences. *Two or more hours credit.* Professor BADGER.

Same as Course 27 in the first semester.

29. Chemical Engineering Laboratory. *Two to five hours credit.* Professor BADGER.

A series of tests on various types of chemical engineering equipment. This course is designed for students who wish training of this kind without concentrating on one problem.

30. Seminary in Metallurgy. Assistant Professor UPTHEGROVE.

Reading and reports on metallurgical subjects. Open only to graduates and seniors who receive special permission. *Two hours credit.*

32. Explosives and Pyrotechnics. *Four hours credit.*  
 This course is offered at the request of the Postgraduate School of the U. S. Naval Academy and is primarily for officers of the Navy. The course includes a study of the processes used in the manufacture of commercial and military explosives and pyrotechnics as well as a study of their properties and uses.  
 Prerequisite: Course 5 in Chemical Engineering.
33. Heat Economy in Chemical Plants. *Two hours credit.* Hours to be arranged. Conferences and problems. Professor BADGER. Open to those who have completed Ch. E. 13. A discussion of methods used in calculating the steam consumption of plants with special reference to the proper coördination of heating, evaporating, and power generating units. Some phases of evaporator design will also be considered.

## SUMMER SESSION OF 1924

1. Engineering Materials. *Three hours credit.* Professor ———.
2. Fuels and their Utilization. *One hour credit.* Mr. BROWN.
6. Metallurgy of Iron and Steel. *Two hours credit.* Assistant Professor WOOD.
8. Metallography. *Two hours credit.* Assistant Professor WOOD.
9. Technical Examination of Gas and Fuel. *Two hours credit.* Mr. BROWN.
10. Gas and Fuel Analysis. *One hour credit.* Mr. BROWN.
12. Special Problems. *Three to eight hours credit.* Professor ———, Assistant Professor WOOD, and Mr. BROWN.

## CHEMISTRY

For a description of all courses offered in the department of Chemistry, see page 214.

Students admitted with a deficiency in entrance chemistry must remove it by completing Courses 1 or 1*b*, but the credit thus obtained is entered on the admission, not the graduation requirements.

Other courses in chemistry are given in the College of Literature, Science, and the Arts, and may be elected by students of the Colleges of Engineering and Architecture, who have had the requisite preparation.

## FIRST SEMESTER

1. General and Inorganic Chemistry Experimental lectures, recitations, and laboratory work. *Four hours credit.* (For entrance, see above.) Professor BIGELOW.

- 2E. Principles of Inorganic Chemistry. Lectures, recitations and laboratory. *Five hours credit.* Dr. HODGES, and assistants.  
Open to those who have passed the entrance requirements in chemistry.
3. Qualitative Analysis. Recitations and laboratory work. *Five hours credit.* Assistant Professors CARNEY and MCALPINE.  
Open to those who have completed Course 2 or 2E.
5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours credit.* Professor WILLARD and Assistant Professor MELOCHE.  
Open to those who have completed Course 3 or 3b.
7. Organic Chemistry. Lectures and laboratory work. *Five hours credit.* Professor GOMBERG, Assistant Professor SCHOEPPLE, Dr. SULLIVAN, Mr. SNOW, and Dr. BLICKE.  
Open to those who have completed Course 3 or 3b.
- 7a. Organic Chemistry. Continuation of Course 7. *Five hours credit.* Lectures, recitations, and laboratory work. Dr. SNOW.  
Open to those who have completed Chemistry 7.
- 8E. Elementary Theoretical and Physical Chemistry. Lectures and recitations. *Three hours credit.* Professor BARTELL.  
Open to those who have had Chemistry 3 or 3b, Physics 2, and Calculus.

SECOND SEMESTER

- 1b. General Inorganic Chemistry. *Four hours credit.* Lectures, recitations, and laboratory. Professor LIGHTY.  
This course offers an opportunity for those entering the University at the opening of the second semester to commence the study of chemistry, but no student will be admitted who might have elected Course 1. Special permission must be obtained from the instructor in order to elect this course.
- 2E. Principles of Inorganic Chemistry. Lectures, recitations, and laboratory. *Five hours credit.* Dr. HODGES and assistants.  
Open to those who have passed the entrance requirements in chemistry.
2. General Inorganic Chemistry. Lectures and recitations. Continuation of Course 1. *Four hours credit.* Professor SMEATON.
3. Qualitative Analysis. Recitations and laboratory work. *Five hours credit.* Assistant Professors CARNEY and MCALPINE.  
Open to those who have completed Course 2 or 2E.

5. Quantitative Analysis. Beginning course. Recitations and laboratory work. *Five hours credit.* Professor WILLARD, and Assistant Professor MELOCHE.  
Open to those who have completed Course 3 or 3b.
7. Organic Chemistry. *Five hours credit.* Lectures, recitations, and laboratory work. Dr. SNOW.  
All students electing Course 7 should elect Course 7a in the following semester, the two courses being considered as a single course extending through the year. These courses are intended for students who are specializing in Chemistry or Chemical Engineering.  
Course 7 must be preceded by Course 3 or 3b.
- 7a. Organic Chemistry. Continuation of Course 7. *Five hours credit.* Lectures, recitations, and laboratory work. Professor GOMBERG, Dr. SULLIVAN, Mr. SNOW, and Mr. BLICKE.  
Open to those who have completed Course 3 or 3b, and who receive special permission.
8. Elementary Theoretical and Physical Chemistry. *Four hours credit.* Professor BIGELOW and Dr. WEATHERILL.

#### SUMMER SESSION OF 1924

(See College of Literature, Science, and the Arts.)

### CIVIL ENGINEERING

The work offered in this department includes Structural, Hydraulic, Transportation, Municipal, Sanitary, and Highway Engineering and Highway Transport.

The Announcement of the College of Engineering should be consulted for information as to the sequence of courses.

#### FIRST SEMESTER

2. Theory of Structures. *Three hours credit.* Professors GRAM and CISSEL, Assistant Professor SHERLOCK, Mr. ALT, Mr. POPE and Mr. VAN EENENAAM.
- 2a. Design of Structures. *Two hours credit.* Assistant Professor SHERLOCK and Mr. POPE.
3. Masonry. *Three hours credit.* Professors GRAM and CISSEL, Assistant Professor SHERLOCK, Mr. ALT, Mr. POPE and Mr. VAN EENENAAM.
5. Design of Structures. *Three hours credit.* Professor CISSEL.
6. Advanced Masonry and Foundations. *Two hours credit.* Professor GRAM.

7. Advanced Design of Structures.  
  - b. Reinforced Concrete. *Three hours credit.* Professor CISSEL.
  - d. Timber Construction. *One hour credit.* Professor CISSEL.
10. Hydrology. *Three hours credit.* Professors KING and WISLER.
11. Hydraulics. *Two hours credit.* Professor KING.
20. Railroad Location. *Two hours credit.* Professor WORLEY and Mr. ALT.
21. Railroad Engineering. *Two hours credit.* Professor WORLEY and Mr. ALT.
22. Transportation. *Two hours credit.* Professor WORLEY.
26. Specifications and Contracts. *Two hours credit.* Professor RIGGS.
27. Public Utility Problems. *Two hours credit.* Professor RIGGS.
30. Water Works. *Three hours credit.* Professors HOAD and DECKER.
32. Sewerage. *Two hours credit.* Professors HOAD and DECKER.
34. Municipal and Industrial Sanitation. *Two hours credit.* Professor HOAD.
35. Sanitary Engineering Design. *Three hours credit.* Professor DECKER.
40. Highway Engineering. *Two hours credit.* Professor BLANCHARD and Assistant Professor SWINTON.
42. Highway Engineering Laboratory. *Two hours credit.* Professor BATEMAN.
60. Sanitary Engineering Research. *Credit to be arranged.* Professors HOAD and DECKER.
61. Irrigation and Drainage. *Two hours credit.* Professors JOHNSTON and KING.
62. Advanced Hydraulic Design. *Two hours credit.* Professor KING.
- 62a. Construction of Models of Hydro-electric Plants. *Credit to be arranged.* Professor MENEFEE.
63. Advanced Railway Design. *Three hours credit.* Professor RIGGS.
64. Hydraulic Engineering Research. *Credit to be arranged.* Professor KING.

65. Structural Engineering Research. *Credit to be arranged.* Professor GRAM.
66. Highway Engineering and Highway Transport. Research. *Credit to be arranged.* Professors BLANCHARD and BATEMAN and Assistant Professor SWINTON.

#### SECOND SEMESTER

2. Theory of Structures. *Three hours credit.* Professors GRAM and CISSEL, Assistant Professor SHERLOCK, Mr. ALT, Mr. POPE and Mr. VAN EENENAAM.
- 2a. Elementary Design of Structures. *Two hours credit.* Assistant Professor SHERLOCK and Mr. POPE.
3. Masonry. *Three hours credit.* Professor CISSEL, Assistant Professor SHERLOCK, Mr. ALT, Mr. POPE and Mr. VAN EENENAAM.
4. Advanced Theory of Structures. *Two hours credit.* Professor GRAM.
5. Advanced Design of Steel Structures. *Three hours credit.* Professor CISSEL, and Assistant Professor ERIKSEN.
6. Advanced Masonry and Foundations. *Two hours credit.* Professors GRAM and CISSEL.
7. Advanced Design of Structures. *One to four hours credit.*
  - a. Bridge Design. *Four hours credit.* Professor CISSEL.
  - b. Reinforced Concrete. *Three hours credit.* Professor CISSEL.
  - c. Arches. *Two hours credit.* Professor CISSEL.
  - d. Timber Construction. *One hour credit.* Professor CISSEL.
10. Hydrology. *Three hours credit.* Professor WISLER.
11. Hydraulics. *Two hours credit.* Professor KING.
12. Development of Water Power. *Three hours credit.* Professor KING.
13. Administration of Water Resources. *Two hours credit.* Professor JOHNSTON.
14. Irrigation and Drainage. *Two hours credit.* Professors KING and JOHNSTON.
16. Design of Hydraulic Structures. *Three hours credit.* Professors KING and WISLER.
18. Rivers and Harbors. *One hour credit.* Professor KING.

21. Railroad Engineering. *Two hours credit.* Professor WORLEY and Mr. ALT.
22. Transportation. *Two hours credit.* Professor WORLEY.
23. Railroad Design. *Three hours credit.* Professor WORLEY and Mr. ALT.
26. Specifications and Contracts. *Two hours credit.* Professor RIGGS.
27. Public Utility Problems. *Two hours credit.* Professor RIGGS.
30. Water Works. *Three hours credit.* Professors HOAD and DECKER.
31. Water Purification. *Two hours credit.* Professor DECKER.
32. Sewerage. *Two hours credit.* Professors HOAD and DECKER.
33. Sewage Disposal. *Two hours credit.* Professor HOAD.
35. Sanitary Engineering Design. *Three hours credit.* Professor DECKER.
36. Municipal Engineering. *Two hours credit.* Professor HOAD, and Assistant Professor BATEMAN.
40. Highway Engineering. *Two hours credit.* Professor BLANCHARD, and Assistant Professor SWINTON.
41. Highway Engineering Theory and Economics and Highway Transport Surveys. *Two hours credit.* Professor BLANCHARD.
42. Highway Engineering Laboratory. *Two hours credit.* Professor BATEMAN.
43. Highway Engineering Design. *Three hours credit.* Assistant Professor SWINTON.
44. Highway Transport Economics, Methods, Legislation, and Management. *Two hours credit.* Professor BLANCHARD.
60. Sanitary Engineering Research. *Credit to be arranged.* Professors HOAD and DECKER.
61. Irrigation and Drainage. *Two hours credit.* Professors KING and JOHNSTON.
62. Advanced Hydraulic Design. *Two hours credit.* Professor KING.
- 62a. Construction of Models of Hydro-electric Plants. *Credit to be arranged.* Professor MENEFEE.



- 63. Advanced Railway Design. *Three hours credit.* Professor RIGGS.
- 64. Hydraulic Engineering Research. *Credit to be arranged.* Professor KING.
- 65. Structural Engineering Research. *Credit to be arranged.* Professor GRAM.
- 66. Highway Engineering and Highway Transport Research. *Credit to be arranged.* Professors BLANCHARD and BATEMAN and Assistant Professor SWINTON.

SUMMER SESSION OF 1924

- 2. Theory of Structures. *Three hours credit.* Professor CISSEL.
- 3. Masonry. *Three hours credit.* Professor CISSEL.
- 6a. Materials of Construction and Foundations. *Two hours credit.* Professor GRAM.
- 41. Highway Engineering Theory and Economics and Highway Transport Surveys. *Two hours credit.* Professor BLANCHARD.
- 44. Highway Transport Economics, Methods, Legislation and Management. *Two hours credit.* Professor BLANCHARD.

**Graduate Short Period Courses**

Graduate work in highway engineering and highway transport leading to the degree of Master of Science or Master of Science in Engineering, has been arranged especially for men engaged in the practice of highway engineering and highway transport. These courses will be given in *periods of two weeks each* during the months from December to March, inclusive. The plan will afford highway engineers, chemists, contractors, engineer-salesmen, highway transport engineers and managers, motor truck salesmen, and others interested in highway engineering and highway transport an opportunity to obtain advanced knowledge during the season of the year when a leave of absence may be easily obtained. The courses are open only to graduate students and qualified special students.

- 67. Highway Transport Economics and Surveys. *Two hours credit.* Professor BLANCHARD and Assistant Professor SWINTON.
- 68. Bituminous Macadam, Bituminous Concrete and Sheet-Asphalt Pavements. *Two hours credit.* Professor BLANCHARD.
- 69. Highway Laboratory Research. *Two hours credit.* Professor BATEMAN.

70. Highway Structures. *Two hours credit.* Professors GRAM and CISSEL.
71. Highway Specifications, Contracts and Jurisprudence. *Two hours credit.* Professor RIGGS.
72. Gravel and Broken-Stone Roads, Dust Prevention, and Bituminous Surfaces. *Two hours credit.* Professor BLANCHARD and Assistant Professor SWINTON.
73. Brick, Cement-Concrete, Stone Block, and Wood Block Pavements. *Two hours credit.* Professor BATEMAN.
74. Bituminous Materials. *Two hours credit.* Professor BLANCHARD.
75. Highway Engineering Seminar. *Two hours credit.* Professors BLANCHARD and BATEMAN and Assistant Professor SWINTON.
76. Highway Engineering Theory and Design. *Two hours credit.* Assistant Professor SWINTON.
77. Highway Engineering Financing, Management, and Organization. *Two hours credit.* Assistant Professor SWINTON.
78. Grading Machinery and Operations, and Earth and Sand-Clay Roads. *Two hours credit.* Professor BATEMAN.
79. Highway Transport Legislation and Traffic Regulations. *Two hours credit.* Professor BLANCHARD.
80. Interrelationship of Highway, Railway, and Waterway Transport. *Two hours credit.* Professors RIGGS and WORLEY.
81. American and English Highway Transport Methods. *Two hours credit.* Professor BLANCHARD.
82. Highway Transport Costs and Record Systems. *Two hours credit.* Assistant Professor SWINTON.
83. Highway Transport Seminar. *Two hours credit.* Professor BLANCHARD, and Assistant Professor SWINTON.
84. Highway Transport Management. *Two hours credit.* Assistant Professor SWINTON.
40. Mechanical Engineering. Mechanism, Operation, and Maintenance of Motor Trucks, Tractors, and Trailers. *Two hours credit.* Assistant Professor LAY.

## DRAWING

### FIRST SEMESTER

1. Mechanical Geometrical and Machine Drawing. *Three hours credit.* (New requirement of all students in Engineering.) Twenty-one sections. Professor GOULDING, Assistant Professors FINCH, PALMER, HANSEN, COOK, POTTS, MORLEY, and Mr. CLARK, Mr. COLE, and Mr. EICHELBERGER.
- 1d. Instrumental and Free-Hand Drawing. Three sections. This course is planned for students of Dentistry. *One hour credit.* Professor GOULDING and Mr. COLE.
2. Descriptive Geometry. *Three hours credit.* (New requirement in descriptive geometry for all students. This course replaces the previous Courses 4 and 5.) Professor GOULDING, Assistant Professors FINCH, PALMER, HANSEN, COOK, POTTS, MORLEY, and Mr. CLARK, Mr. COLE, and Mr. EICHELBERGER.
3. Advanced Mechanical Geometrical and Machine Drawing and Free-Hand Sketching. *Two hours credit.* (Required of all engineers. Designed this year as a substitute for C.E., M.E., and E.E. 1. The design of this course will be changed for next year.) Four sections. Professor GOULDING, Assistant Professor HANSEN.
- 3a. Advanced Mechanical Geometry and Machine Drawing and Free-Hand Sketching. *Two hours credit.* (Required of all engineers. Designed this year as a substitute for C.E., M.E., and E.E. 1. The design of this course will be changed for next year.) Fifteen sections. Professor GOULDING, Assistant Professors FINCH, PALMER, HANSEN, COOK, POTTS, MORLEY, and Mr. CLARK, Mr. COLE, and Mr. EICHELBERGER.
4. Mechanism. *Three hours credit.* One section. Professor MILLER.
10. Free-Hand Lettering. *Two hours credit.* (Elective.) Assistant Professor PALMER.

### SECOND SEMESTER

1. Mechanical Geometrical and Machine Drawing. *Three hours credit.* (New requirement of all students in Engineering.) Two sections. Assistant Professor FINCH.
- 1d. Instrumental and Free-Hand Drawing. Two sections. This course is planned for students of Dentistry. *One hour credit.* Mr. COLE.

2. Descriptive Geometry. *Three hours credit.* (New requirement in descriptive geometry for all students. This course replaces the previous Courses 4 and 5.) Professor GOULDING, Assistant Professors FINCH, PALMER, HANSEN, COOK, POTTS, MORLEY, and Mr. CLARK, Mr. COLE, and Mr. EICHELBERGER.
3. Advanced Mechanical Geometrical and Machine Drawing and Free-Hand Sketching. *Two hours credit.* (Required of all engineers. Designed this year as a substitute for C.E., M.E., and E.E. 1. The design of this course will be changed for next year.) Four sections. Professor GOULDING, Assistant Professor HANSEN.
- 3a. Advanced Mechanical Geometrical and Machine Drawing and Free-Hand Sketching. *Two hours credit.* (Required of all engineers. Designed this year as a substitute for C.E., M.E., and E.E. 1. The design of this course will be changed for next year.) Fifteen sections. Professor GOULDING, Assistant Professors FINCH, PALMER, HANSEN, COOK, POTTS, MORLEY, and Mr. CLARK, Mr. COLE, and Mr. EICHELBERGER.
4. Mechanism. *Three hours credit.* One section. Professor MILLER.
10. Free-Hand Lettering. *Two hours credit.* (Elective.) Assistant Professor PALMER.

SUMMER SESSION OF 1924

1. Mechanical Geometrical and Machine Drawing. *Three hours credit.* (New requirement of all students in Engineering.) Professor MILLER.
- 1d. Instrumental and Free-Hand Drawing. This course is planned for students of Dentistry. *One hour credit.* Professor MILLER.
2. Descriptive Geometry. *Three hours credit.* (New requirement in descriptive Geometry for all students. This course replaces the previous Courses 4 and 5.) Professor MILLER.
3. Advanced Mechanical Geometrical and Machine Drawing and Free-Hand Sketching. *Two hours credit.* (Required of all engineers. Designed this year as a substitute for C.E., M.E., and E.E. 1. The design of this course will be changed for next year.) Professor MILLER.
4. Mechanism. *Three hours credit.* One section. (This course in mechanism may be substituted for M.E. 10 if desired.) Professor MILLER.

## ELECTRICAL ENGINEERING

### BOTH SEMESTERS

2. Direct Current Apparatus and Circuits. Recitations and laboratory work. *Four hours credit.* Professor HIGBIE, Mr. DREESE, Mr. BULL.  
Prerequisites: Courses 1E and 2E in Physics and Course 1 in Engineering Mechanics.
- 2A. Electrical Apparatus and Circuits. This course is intended for non-electrical students. Recitations and laboratory work. *Four hours credit.* Professor CANNON, Assistant Professors MOORE and FAIRMAN, Mr. MILLER, Mr. BULL and Mr. GAULT.
3. Alternating Current Circuits. Recitations and laboratory work. *Four hours credit.* Professors HIGBIE and CANNON, Mr. ATTWOOD, Mr. STOUT and Mr. MILLER.
- 3A. Alternating Current Apparatus. This course covers a part of the work taken up in Courses 3 and 4. It is designed exclusively for non-electrical students. Recitations and laboratory work. *Three hours credit.* Professor BAILEY.  
Prerequisites: Course 2A (or equivalent).
4. Alternating Current Apparatus. Recitations and laboratory work. *Four hours credit.* Professor BAILEY, Mr. DREESE and Mr. GAULT.  
Prerequisite: Course 3.
5. Design of Electrical Machinery and Appliances. Lectures, recitations and computing periods. *Four hours credit.* Assistant Professor MOORE.  
Prerequisites: Courses 3 and 14.
7. Illumination and Photometry. Lectures, recitations and laboratory work. *Two hours credit.* Professor HIGBIE, Mr. JOHNSTON.  
Prerequisite: Course 16.
9. Directed Research Work. *Credit to be arranged.* This course may be elected by proficient students after consultation with members of the staff. It differs from Course 18 in that the student works under the direction of a staff member.
11. Power Plants. Transmission and Distribution. Lectures and recitations. *Five hours credit.* Professor LOVELL and Mr. MILLER.  
Prerequisite: Course 3 or 3A.

- [13. Principles of Electric Communication. Lectures, recitations and laboratory work. *Four hours credit.*  
Prerequisite: Course 3. Not offered in 1922-1923.]
14. Mechanism of Electrical Machines. Recitations and drawing. *Three hours credit.* Mr. ATTWOOD.  
Prerequisite: Course 2 in Engineering Mechanics.
16. Flux and Potential. Lecture and recitations. *Three hours credit.* Assistant Professor FAIRMAN and Mr. ATTWOOD.  
Prerequisite: Course 2E in Physics.
- NOTE: Course 16 aims to acquaint the student with the ideas of flux and potential as used in physical science and to give him some facility in solving the simpler problems.
17. Electromechanics. Lectures and recitations. *Four hours credit.* Professor CANNON.  
Prerequisite: Course 3.
18. Research Work. *Credit to be arranged.* Various members of the department faculty.  
May be elected only by permission of the Head of the department.

FIRST SEMESTER ONLY

8. Principles of Electric Traction. Lectures and recitations. *Two hours credit.* Professor LOVELL.
10. Advanced Theory of Electrical Circuits. Lectures and reading. *Three hours credit.* Mr. DREESE.  
Prerequisite: Course 3.
33. Industrial Electrical Engineering. Lectures and recitations. *Two hours credit.* Professor LOVELL.  
Prerequisite: Course 3.

SECOND SEMESTER ONLY

6. Design of Electrical Machinery and Appliances. Lectures, recitations and computation. *Two hours credit.* Professor BAILEY.  
Prerequisite: Course 5.
- 6a. (An extended form of Course 6). *Four hours credit.* Professor BAILEY.
15. Advanced Lighting. Seminar in lighting, investigations and reports. *Two hours credit.* Professor HIGBIE.  
Prerequisite: Course 7.
19. Study of Design of Power Plants. Lectures and design problems. *Two hours credit.* Professor LOVELL.  
Prerequisite: Course 11.

20. Study of Design of Electric Transmission and Distribution Systems. *Two hours credit.* Professor LOVELL.  
Prerequisite: Course 11.
22. Radio Engineering. Lectures, recitations and laboratory work. *Four hours credit.* Mr. DREESE.  
Prerequisite: Course 17 and Course 16 in Physics. Must be preceded or accompanied by Course 10 in Electrical Engineering.
36. Rates and Cost Analysis. Lectures and recitations. *One hour credit.* Professor LOVELL.  
Prerequisite: Course 11. Open to seniors only.

#### SUMMER SESSION OF 1924

2. Electrical Apparatus and Circuits, I. Direct Current. *Four hours credit.* Mr. BULL.
- 2a. Electrical Apparatus and Circuits. Designed for Engineering students other than Electrical Engineers. *Four hours credit.* Professor LOVELL, Assistant Professor FAIRMAN, and Mr. STOUT.
3. Electrical Apparatus and Circuits, II. Alternating Currents. *Four hours credit.* Professor HIGBIE, and Mr. STOUT.
4. Electrical Apparatus and Circuits, III. Alternating-current Motors. *Four hours credit.* Professor BAILEY, and Mr. BULL.
7. Illumination and Photometry. *Two hours credit.* Professor ———.
11. Power Plants, Transmissions, and Distribution. *Five hours credit.* Professor ———.
17. Electromechanics. *Four hours credit.* Professor ———.
16. Flux and Potential. *Three hours credit.* Professor ———.
18. Research Work in Electrical Engineering. *Credit to be arranged.*

#### ENGINEERING MECHANICS

Professors PATTERSON, MENEFEE, AIREY, VAN DEN BROEK, WISLER, Assistant Professors STEVENS, SWINTON, OLMSTEAD, PALMER, FINCH, SHERLOCK, COOK and HANSEN, and Mr. LIDDECOAT, Mr. DODGE, Mr. FRANKLIN and Mr. DONNELL.

#### BOTH SEMESTERS

1. Statics, Center of Gravity, Moments of Inertia. Nine sections. *Four hours credit.*  
Course 1 must be preceded by Course 3E in Mathematics and Course 1E in Physics.

2. Strength and Resistance of Materials. Fundamentals of Structural Design. Theory of strength and stiffness of beams, girders, columns, shafts, etc. Twelve sections. *Three hours credit.*

Course 2 must be preceded by Course 1 in Engineering Mechanics.

- 2a. Strength and Resistance of Materials. *One hour credit.*

Course 2a is a testing course in which the Theory in Course 2 is closely followed. One laboratory period a week.

3. Dynamics. Work and Energy. The use of velocity, acceleration and other diagrams in the studying of dynamic problems relating to machines. Nine sections. *Three hours credit.*

Course 3 must be preceded by Course 1 in Engineering Mechanics.

4. Hydromechanics. Pressure of Fluids. Flotation. Flow of water through pipes and orifices, over weirs, and in open channels. Occasional visits to hydraulic lecture room where demonstrations are made. Seven sections. *Two hours credit.*

Course 4 must be preceded by Course 1 in Engineering Mechanics.

5. Testing Materials. A study of methods and results of laboratory investigations of the physical properties of engineering materials. *Two hours credit.*

Course 5 must be preceded by Courses 1 and 2 in Engineering Mechanics.

6. Strength of Materials. Testing. The elementary theory of the strength of ties, struts, beams, and shafts. Laboratory practice in commercial testing and investigation methods. Two class and one laboratory period each week. *Three hours credit.*

Course 6 must be preceded by Course 1 or 2 in Engineering Mechanics. It is an abridgment of the work covered in Courses 2 and 5, and may not be elected by any one who has passed, or intends to elect either of these courses.

7. Research in Strength of Materials. Must be preceded by Courses 2 and 2a or 5. *Credit in proportion to the work done.*

8. Advanced Dynamics. Must be preceded by Course 3.

9. Advanced Strength of Materials. Must be preceded by Course 2.

#### SUMMER SESSION OF 1924

1. Statics. *Four hours credit.* Professor PATTERSON, and Assistant Professor OLMSTED.

2. Strength and Elasticity of Materials. *Three hours credit.* Assistant Professor SWINTON, and Mr. LIDDICOAT.



- 2a. Strength and Elasticity of Materials. *One hour credit.* Mr. FRANKLIN.
3. Dynamics. *Three hours credit.* Assistant Professor SWINTON.
4. Hydromechanics. *Two hours credit.* Assistant Professor OLMSTED.

### ENGLISH

The work in English is based on the assumption that the engineering or architectural student needs in general to be able to speak and to write, and to enjoy books in a sensible and discriminating way. He must also prepare definitely for the particular kind of writing demanded by his profession. There have been provided, therefore, in addition to general reading and writing courses, a number of technical courses designed to meet the special needs of the student in engineering and architecture.

#### FIRST SEMESTER

1. Theme-Writing and Oral Exposition. *Four hours credit.* Ten sections. Assistant Professors LANGWORTHY and KLOCKSIEM, Mr. EGLY, Mr. WALTON, Dr. WENGER, Mr. DAHLSTROM, Mr. BRACKETT, Mr. EDLOFF.
- 1a. Theme-Writing and Oral Exposition. *Two hours credit.* Mr. DAHLSTROM.
2. Theme-Writing and Oral Exposition. *Two hours credit.* Mr. BRACKETT.
3. Public Speaking for Engineers. *Two hours credit.* Two sections. Mr. DAHLSTROM.
4. Note-Taking. *Two hours credit.* Two sections. Assistant Professor THORNTON.
5. Scientific and Technical Papers. For juniors and seniors. *Two hours credit.* Assistant Professor THORNTON.
6. Report-Writing. For seniors only. *Two hours credit.* Four lectures and six quiz sections. Professor NELSON.
14. The Engineer and his Reading. For juniors and seniors. *Two hours credit.* Ten sections. Assistant Professors THORNTON, LANGWORTHY, SCHNEIDER, KLOCKSIEM, Mr. BRACKETT.
16. English for Foreign Students. *Two hours credit.* Four hours recitation required. Assistant Professor KLOCKSIEM.
21. Readings in Contemporary Literature. *Two hours credit.* Two sections. Assistant Professor SCHNEIDER, Dr. WENGER.

23. The Modern Novel. *Two hours credit.* Assistant Professor LANGWORTHY.
24. The Short Story. *Two hours credit.* Two sections. Assistant Professor SCHNEIDER.
26. The Modern Drama. *Two hours credit.* Mr. EGLY.
29. Studies in American Literature. *Two hours credit.* Mr. WALTON.

SECOND SEMESTER

1. Theme-Writing and Oral Exposition. *Four hours credit.* Eight sections. Assistant Professor KLOCKSIEM, Mr. EGLY, Dr. WENGER, Mr. WALTON, Mr. DAHLSTROM, Mr. BRACKETT.
2. Theme-Writing and Oral Exposition. *Two hours credit.* Mr. BRACKETT.
- 2a. Theme-Writing and Oral Exposition. *Two hours credit.* Mr. DAHLSTROM.
3. Oral Exposition and Argument. *Two hours credit.* Two sections. Mr. DAHLSTROM.
4. Note-Taking. *Two hours credit.* Assistant Professor THORNTON.
5. Scientific and Technical Papers. For juniors and seniors. *Two hours credit.* Two sections. Assistant Professor THORNTON.
6. Engineering Reports. For seniors only. *Two hours credit.* Four lectures and six quiz sections. Professor NELSON.
14. The Engineer and His Reading. For juniors and seniors. *Two hours credit.* Ten sections. Assistant Professors THORNTON, SCHNEIDER, LANGWORTHY, KLOCKSIEM, Mr. BRACKETT.
17. English for Foreign Students. *Two hours credit.* Four recitations. Assistant Professor KLOCKSIEM.
21. Readings in Contemporary Literature. *Two hours credit.* Two sections. Assistant Professor SCHNEIDER, Dr. WENGER.
23. The Modern Novel. *Two hours credit.* Two sections. Assistant Professor LANGWORTHY.
24. The Short Story. *Two hours credit.* Two sections. Assistant Professor SCHNEIDER.
26. The Modern Drama. *Two hours credit.* Mr. EGLY.
27. Scientific Literature. *Two hours credit.* Assistant Professor THORNTON.

## SUMMER SESSION OF 1924

1. Theme-Writing and Oral Exposition. *Four hours credit.* Assistant Professor KLOCKSIEM.
14. The Engineer and His Reading. *Two hours credit.* Assistant Professor KLOCKSIEM.

**GEOLOGY AND GEOGRAPHY**

For a description of all courses offered in the department of Geology, see page 275.

The courses in Geology are planned to meet the requirements of students of engineering whose profession make some knowledge of geology essential; men who are to have in their hands the control or operation of mines; and consulting geologists and geological engineers.

Research is especially encouraged along the lines of structural geology, paleontology, glacial geology, geography, and geophysics.

## FIRST SEMESTER

3. Physical Geology. A course adapted to the needs of students in these departments but open to others as well. Two lectures, one quiz, and a two-hour laboratory period per week. *Three hours credit.* Professor HOBBS and assistant.  
Students are recommended to take 4a or 4b as a continuation. (See below.)
- 4a. Historical Geology. An introductory course in historical and stratigraphical geology, which must be preceded by Geology 3. Lectures and laboratory work. *Three hours credit.* Mr. HUSSEY and assistant.
- 42a. Economic Geology (non-metals). A general course treating of the nature, occurrence, and distribution of the non-metallic mineral resources such as coal, oil and gas, salt, gypsum, building stones, phosphate rock, etc. Geology 3 and Mineralogy 1 are prerequisite, while Geology 4a or 4b is strongly recommended. *Three hours credit.* Mr. GOULD.
43. Oil Geology. A course treating of the origin, occurrence, and exploitation of deposits of oil and gas. This course should be preceded by Course 3 and 4a or 4b, and should be followed by Courses 22 and 44. *Three hours credit.* Professor COOK.

## SECOND SEMESTER

3. Physical Geology. A course adapted to the needs of students in these departments, but open to others as well. *Three hours credit.* Professor HOBBS and assistant.  
Students who can spare the time are recommended to continue later with 4a or 4b.

- 4b. Elementary Historical Geology. A course describing the stratigraphy of North America and the origin and evolution of life during geological times. Lectures and laboratory work. *Three hours credit.* Professor CASE and assistant.
40. Soil Geology. A comprehensive survey of the subject including the origin of soils, their physical and chemical constitution, the influence of climate on soil fertility, irrigation and drainage, tillage, fertilizers, etc., and consideration of the regolith of the United States in relation to geologic, physiographic, and climate factors. Geology 3 and Mineralogy 1 and 9 are prerequisites. *Three hours credit.* (The attention of students desiring additional laboratory work is directed to Course 41.) Professor COOK.
- 42b. Economic Geology (metals). In this course the metallic mineral resources are treated in the same manner as are the non-metallic resources during the first semester. Although this course may be elected independently of Geology 42a, both are essential to a general survey of the subject. Prerequisites the same as for Geology 42a. *Three hours credit.* Professor COOK.
44. The Stratigraphy of Oil Geology. A course describing the distribution and stratigraphic relations of the various oil horizons. This course should follow Course 43. *Three hours credit.* Assistant Professor EHLERS.

### MATHEMATICS

Professors ZIWET, FIELD, and RUNNING, Associate Professors LOVE, and HILDEBRANDT, Assistant Professors HOPKINS, POOR, NELSON, ROUSE, and DENTON, Mr. BLESSING, Mr. KAZARINOFF, Mr. SALLADE, Mr. JONES, Mr. OLSON, Mr. SIMMONS, Mr. CHURCHILL, and Mr. COATES.

Students of engineering are required to take in order Courses 1, 2, 3, and 4. Course 4 may be replaced by Courses 4a and 4b. Students of chemical engineering are not required to take Course 4b. Students who have not received credit in plane trigonometry on admission must elect Course 1a in their first semester.

- 1a. Plane Trigonometry. *Two hours credit.* Both semesters.

Definitions of the trigonometric functions; principal relations between them; their application to the solution of triangles; use of trigonometric and logarithmic tables, applied problems.

1. Algebra and Analytic Geometry. *Four hours credit.* Both semesters.

Coördinates in the plane; the straight line; linear equations; the circle; complex numbers; quadratic and cubic functions and equations; polynomials.

2. Plane and Solid Analytic Geometry. *Four hours credit.* Both semesters. Elements of the differential calculus; numerical equations; the parabola, ellipse, and hyperbola; the general equation of the second degree; elements of solid analytic geometry.
- 2a. Solid Analytic Geometry. *Two hours credit.* First semester.
3. Calculus and Analytic Geometry. *Five hours credit.* Both semesters.  
Tracing and discussion of curves; integration and its applications; solid analytic geometry.
- 3a. Calculus. *Five hours credit.* Both semesters.  
Elements of the differential calculus; applications of the derivative; differentiation of transcendental functions; tracing and discussion of curves; integration and its applications.
4. Calculus and Differential Equations. *Five hours credit.* Both semesters.  
Definite integrals and their application to the determination of lengths of arcs, areas, volumes, mass moments, moments of inertia, etc.; partial and total derivatives, infinite series. Elements of the solution of differential equations, with applications.
- 4a. Calculus. *Three hours credit.* Both semesters.  
Definite integrals and their application to the determination of lengths of arcs, areas, volumes, mass moments, moments of inertia, etc.; partial and total derivatives; infinite series.
- 4b. Calculus. *Two hours credit.* Both semesters.  
Elements of the solution of differential equations, with applications.
17. Theory of the Potential. *Three hours credit.* Professor HILDEBRANDT.
25. Differential Geometry I. *Two hours credit.* Assistant Professor NELSON.
35. Projective Geometry. *Three hours credit.* Professor FIELD.  
Recitations and laboratory.
37. Advanced Mechanics. *Three hours credit.* Assistant Professor POOR.
45. Mathematics of Finance. *Two hours credit.* Professor RUNNING.
73. Differential Equations. *Three hours credit.* Assistant Professor DENTON.

75. Advanced Calculus. *Three hours credit.* Professor LOVE.
80. Theory of Functions of a Complex Variable. *Three hours credit.* Assistant Professor HOPKINS.
83. Mathematical Theory of Elasticity I. *Two hours credit.* Professor ZIWET.
89. Calculus of Variations. *Two hours credit.* Mr. KAZARINOFF.

SUMMER SESSION OF 1924

- Z. Solid Geometry. *For entrance.* Assistant Professor NELSON.
- 1a. Trigonometry. Elementary Course. Assistant Professor POOR.
1. Algebra and Analytic Geometry. *Four hours credit.* Assistant Professor NELSON.
2. Analytic Geometry. *Four hours credit.* Assistant Professor POOR.
3. Calculus and Solid Analytic Geometry. *Five hours credit.* Assistant Professor ROUSE, and Mr. OLSON.
- 4a. Calculus. *Three hours credit.* Assistant Professor HOPKINS.
- 4b. Differential Equations. *Two hours credit.* Assistant Professor HOPKINS.
- 57s. Graphical Methods. *Two hours credit.* Professor RUNNING.
- 33s. Analytic Mechanics. *Two hours credit.* Professor FIELD.
- 16s. Theory of Functions of a Real Variable. *Two hours credit.* Professor HILDEBRANDT.

**MECHANICAL ENGINEERING**

FIRST SEMESTER

2. Elements of Machine Design. *Three hours credit.* Assistant Professors MICKLE and BEGEMAN, Mr. GOOD and Mr. CALHOON.
3. Heat Engines. *Four hours credit.* Professors ANDERSON, BURSLEY, and FESSENDEN, Assistant Professor WATSON, Mr. KESSLER, Mr. MARIN, Mr. CALHOON.
4. Hydraulic Machinery. *Three hours credit.* Professor SHERZER.
5. Thermodynamics. *Three hours credit.* Professors EMSWILER, and FESSENDEN.

6. Theory of Machine Design. *Four hours credit.* Professor WILSON, Assistant Professors MICKLE and NICKELSEN, and Mr. GOOD.
7. Mechanical Engineering Laboratory. First Course. *Two hours credit.* Professor EMSWILER, Assistant Professors KEELER and WATSON, Mr. KESSLER, and Mr. MARIN.
8. Mechanical Engineering Laboratory. First Course. *Three hours credit.* Professor ELMSWILER, Assistant Professors KEELER and WATSON, Mr. KESSLER, and Mr. MARIN.
9. Power Plants. *Three hours credit.* Professor HAWLEY and Assistant Professor KEELER.
10. Theory and Machine Movements. *Two hours credit.* Professor WILSON, and Assistant Professors MICKLE and BEGEMAN.
11. Steam Boilers. *Three hours credit.* Professor FESSENDEN.
- 11a. Design and Steam Boilers. *Three hours credit.* Professor FESSENDEN.
13. Steam Turbines. *Three hours credit.* Professor EMSWILER.
15. Internal Combustion Engines and Gas Producers. *Three hours credit.* Mr. GOOD.
16. Water Turbines. *Three hours credit.* Professor SHERZER.
18. Heating and Ventilation. First Course. *Two hours credit.* Professor ANDERSON.
20. Mechanical Handling of Materials. *Two hours credit.* Professor HAWLEY.
- 20a. Design of Hoisting and Conveying Machinery. *Three hours credit.* Professor HAWLEY.
22. Mechanical Engineering Laboratory. Advanced Course. *Two or three hours credit.* Professor EMSWILER and Assistant Professor KESSLER.
23. Hydraulic Laboratory. Advanced Course. *Two or three hours credit.* Professor SHERZER.
29. Gasoline Automobile. *Three hours credit.* Professor LAY.
30. Automobile and Motor Truck Engine. *Three hours credit.* Assistant Professor NICKELSEN.
31. Automobile and Motor Truck Chassis. Assistant Professor NICKELSEN.

32. Automobile Testing. *Two hours credit.* Professor LAY.
33. Advanced Automobile Testing and Research. Professor LAY.
35. Scientific Shop Management. *Three hours credit.* Assistant Professor GORDY.
36. Scientific Shop Management. Advanced Course. *Two or three hours credit, as arranged.* Assistant Professor GORDY.
37. Special Topics on the Internal Combustion Engine. *Two hours credit.* Mr. GOOD.
41. Automobile Seminar. *Credit as arranged.* Assistant Professor NICKELSEN.

SECOND SEMESTER

2. Elements of Machine Design. *Three hours credit.* Assistant Professors MICKLE and BEGEMAN, Mr. GOOD and Mr. CALHOON.
3. Steam Engines and Other Heat Engines. *Four hours credit.* Professors ANDERSON, BURSLEY, and FESSENDEN, Assistant Professor WATSON, Mr. KESSLER, Mr. MARIN, and Mr. CALHOON.
4. Hydraulic Machinery. *Three hours credit.* Professor SHERZER.
5. Thermodynamics. *Three hours credit.* Professors EMSWILER, and FESSENDEN, and Assistant Professor KEELER.
6. Theory of Machine Design. *Four hours credit.* Professor WILSON, Assistant Professors MICKLE and NICKELSEN, and Mr. GOOD.
7. Mechanical Engineering Laboratory. First Course. *Two hours credit.* Professor EMSWILER, Assistant Professors KEELER and WATSON, Mr. KESSLER and Mr. MARIN.
8. Mechanical Engineering Laboratory. Second Course. *Three hours credit.* Professor EMSWILER, Assistant Professors KEELER and WATSON, Mr. KESSLER and Mr. MARIN.
9. Power Plants and Power Transmission. *Three hours credit.* Professor HAWLEY and Assistant Professor KEELER.
- 9a. Design of Power Plants. *Three hours credit.* Professor HAWLEY.
10. Theory and Machine Movements. *Two hours credit.* Professor WILSON, and Assistant Professors MICKLE and BEGEMAN.
- 11a. Design and Steam Boilers. *Three hours credit.* Professor FESSENDEN.



12. Steam Reciprocating Engines. *Two hours credit.* Professor FESSENDEN.
- 12a. Design of Steam Reciprocating Engines. *Three hours credit.* Professor FESSENDEN.
13. Steam Turbines. *Three hours credit.* Professor EMSWILER.
15. Internal Combustion Engines and Gas Producers. *Three hours credit.* Mr. GOOD.
- 15a. Design of Internal Combustion Engines. *Three hours credit.* Mr. GOOD.
16. Water Turbines. *Three hours credit.* Professor SHERZER.
- 16a. Design of Water Turbines. *Three hours credit.* Professor SHERZER.
17. Pumps. *Three hours credit.* Professor SHERZER.
- 17a. Design of Pumps. *Three hours credit.* Professor SHERZER.
19. Refrigeration. *Two hours credit.* Professor FESSENDEN.
20. Mechanical Handling of Materials. *Two hours credit.* Professor HAWLEY.
- 20a. Design of Hoisting and Conveying Machinery. *Three hours credit.* Professor HAWLEY.
22. Mechanical Engineering Laboratory. Advanced Course. *Two or three hours credit.* Professor EMSWILER.
23. Hydraulic Laboratory. Advanced Course. *Two or three hours credit.* Professor SHERZER.
25. Heating and Ventilation. Second Course. *Two hours credit.* Professor ANDERSON.
- 25a. Design of Heating and Ventilating Systems. *Three hours credit.* Professor ANDERSON.
29. Gasoline Automobiles. *Three hours credit.* Professor LAY.
- 30a. Automobile and Motor Truck Engine Design. *Three hours credit.* Assistant Professor NICKELSEN.
- 31a. Automobile and Motor Truck Chassis Design. *Three hours credit.* Assistant Professor NICKELSEN.
32. Automobile Testing. *Two hours credit.* Professor LAY.
33. Advanced Automobile Testing and Research. *Two or three hours credit.* Professor LAY.

34. Advanced Automobile Design and Research. Assistant Professor NICKELSEN.
35. Scientific Shop Management. *Three hours credit.* Assistant Professor GORDY.
36. Scientific Shop Management. Advanced Course. *Three hours credit.* Assistant Professor GORDY.
37. Special Topics on the Internal Combustion Engine. *Two hours credit.* Mr. GOOD.
41. Automobile Seminar. Assistant Professor NICKELSEN.

SUMMER SESSION OF 1924

2. Elements of Machine Design. *Three hours credit.* Assistant Professor MICKLE.
3. Steam Engines and other Heat Engines. *Four hours credit.* Professor HAWLEY.
4. Hydraulic Machinery. *Three hours credit.* Professor SHERZER.
5. Thermodynamics. *Three hours credit.* Assistant Professor KEELER.
6. Theory of Machine Design. *Four hours credit.* Professor           .
7. Mechanical Engineering Laboratory. *Two hours credit.* Assistant Professor WATSON.
8. Mechanical Engineering Laboratory. Second Course. *Three hours credit.* Assistant Professor WATSON.
9. Power Plants. *Three hours credit.* Assistant Professor KEELER.
- 17a. Design of Pumping Machinery. *Three hours credit.* Professor SHERZER.
- 20a. Design of Hoisting and Conveying Machinery. *Three hours credit.* Professor HAWLEY.

**MILITARY SCIENCE AND TACTICS**

The courses in Military Science and Tactics are designed to give a thorough ground work in military subjects considered necessary as a part of the education of a commissioned officer in the Reserve Corps of the United States Army. A student enrolls for Military Science at the Headquarters, Reserve Officers' Training Corps, on the campus. He also elects his Military Science courses at the same time and place as he elects his other University courses and receives

academic credit therefor which counts toward graduation. Enrollments are for a period of four semesters; that is, for either a Basic Group of an Advanced Group, in its entirety. The first four semesters constitute the Basic Group, and the second four semesters the Advanced Group. Once enrolled in either group the completion of that group becomes a prerequisite to graduation unless the student is discharged from this obligation upon the recommendation of the Professor of Military Science and Tactics. Successful completion of a Basic and an Advanced Group will lead to a recommendation for a commission as an officer of the Reserve Corps. During the Advanced Group a student receives pay from the Government totaling about \$200. A deposit of ten dollars made with the Treasurer of the University to cover property responsibility is required of each student. The deposit is refunded upon return of all property and equipment. For further information see special announcement, Military Science and Tactics.

### Coast Artillery Corps

#### FIRST SEMESTER

1. Elementary Infantry: Infantry Drill Regulations and Marksmanship. *One hour credit.* Assistant Professor LOUISELL.
3. Heavy Artillery Material. *One hour credit.* Assistant Professor BROOKS.
5. Orientation: Topographical operations in locating and laying artillery. Field Engineering: Emplacements, obstacles and camouflage. *Two hours credit.* Assistant Professor DUNN.
7. Motor Transportation. See Mechanical Engineering 29. Professor LAY.

#### SECOND SEMESTER

2. Elementary Infantry (Continued): Fundamental subjects in military training. *One hour credit.* Assistant Professor LOUISELL.
4. Artillery Material: Map reading and sketching. *One hour credit.* Assistant Professor BROOKS.
6. Gunnery and Fire Control: Problems of Artillery in the field. *Two hours credit.* Assistant Professor DUNN.
8. Military Law: Military History and Policy: Company Administration: Tactical Employment of Artillery. *Two hours credit.* Assistant Professor DUNN.

### Signal Corps

#### FIRST SEMESTER

11. Elementary Infantry and Telephony: *One hour credit.* Assistant Professors HOOKS and LOUISELL.

13. Military Map Reading and Sketching: Military Telegraphy. *One hour credit.* Assistant Professor HOORN.
15. Signal Corps Organization and Tactics: Field Engineering. *Two hours credit.* Assistant Professor HOORN.
17. Communication Engineering. See Physics 16.

SECOND SEMESTER

12. Elementary Infantry (Continued): Fundamental subjects in military training. *One hour credit.* Assistant Professor LOUISELL.
14. Field Radio Sets. *One hour credit.* Assistant Professor HOORN.
16. Military Law: Military History and Policy: Company Administration: Message Centers. *Two hours credit.* Assistant Professor HOORN.
18. Communication Engineering: See Electrical Engineering 10.

Infantry

FIRST SEMESTER

1. Elementary Infantry: Infantry Drill Regulations and Marksmanship. *One hour credit.* Assistant Professor LOUISELL.
23. Automatic Rifle: Scouting and Patrolling: Musketry. *One hour credit.* Assistant Professor COLLINS.
25. Command and Leadership: Minor Tactics: Field Engineering. *Two hours credit.* Assistant Professor LOUISELL.
27. Minor Tactics. *Two hours credit.* Assistant Professor COLLINS.

SECOND SEMESTER

2. Elementary Infantry (Continued): Fundamental subjects in military training. *One hour credit.* Assistant Professor LOUISELL.
24. Infantry Weapons: Map Reading and Sketching. *One hour credit.* Assistant Professor LOUISELL.
26. Accompanying Weapons: Machine Guns. *Two hours credit.* Assistant Professor LOUISELL.
28. Military Law: Military History and Policy: Company Administration. *Two hours credit.* Assistant Professor COLLINS.

**Ordnance****FIRST SEMESTER****Basic Group**

1. Elementary Infantry: Infantry Drill Regulations and Marksmanship. *One hour credit.* Assistant Professor LOUISELL.

**Basic Group**

3. Heavy Artillery Material. *One hour credit.* Assistant Professor BROOKS.

**SECOND SEMESTER**

2. Elementary Infantry (Continued): Fundamental subjects in military training. *One hour credit.* Assistant Professor LOUISELL.
4. Artillery Material: Map Reading and Sketching. *One hour credit.* Assistant Professor BROOKS.

**Advanced Group**

The Ordnance Department feels that additional technical or administrative courses are of more value to a future Ordnance officer than more strictly military courses. For this reason an Ordnance student, instead of taking 8 hours military work during his advanced course, is required to elect 8 semester hours from the following list of subjects. The subjects selected must be in addition to the subjects required by the college in which enrolled. In other words, they may be taken at any time during the college course.

Chemical Engineering 1, 4, 5, 6, 7, 8, 12, 13, 18, 21, a, i, j, 24, 26, 30, 31, 32. Chemistry 2E, 3, 5, 7, 7a, 8E, 13, 14, 14a, 14b, 25, 28, 26; Civil Engineering 26; Drawing 4; Electrical Engineering 2, 2a, 3, 3a, 4, 5, 11, 14, 17, 19, 20, 33; Engineering Mechanics 1, 2, 2a, 3, 4, 5, 6; English 6; Mathematics 4, 4a, 4b; Mechanical Engineering 2, 3, 4, 5, 6, 7, 8, 10, 20, 21a, 29, 30, 30a, 31, 31a, 32, 33, 34, 35, 36, 37, 38, 39, 42; Physics 1E, 2E, 5E, 6, 11, 18, 24; Political Economy 1E, 1, 2, 3, 15, 32, 34, 38, 38E, 20; Shop 1, 2, 3, 4, 5, 6, 7, 8, 9.

The above requirements do not apply to Civil Engineers or students of other than the Engineering College, who, in general, are not eligible for the Ordnance Course. Special Engineering students, and students of Business Administration, should consult the Ordnance officer as to the possibility of fulfilling the Ordnance requirements. All students who enter the Ordnance Advanced Course should consult the Ordnance officer before selecting the courses to full Ordnance requirements.

### Air Service

Arrangements have recently been made with the War Department by which those students of Aeronautics who are enrolled in the Advanced Group of any one of the above mentioned units of the R. O. T. C., and who desire a commission as second lieutenant in the Air Service, Reserve Corps, may attend one Advanced Group Camp of the Air Service at which both theoretical and practical instruction in flying is given, provided, that they have passed the physical examination for the Air Service.

Students of Aeronautics may be enrolled in the Basic Group of either the Coast Artillery, Infantry, Ordnance or Signal units upon passing the usual physical examination. At the end of the course of the Basic Group those who desire a commission in the Air Service Reserve Corps will be given the physical examination prescribed for the members of the Air Service units. Those who qualify physically and who enroll in the Advanced Group will attend one Air Service Advanced Camp. Upon satisfactory completion of the course in Aeronautics and the course of the Advanced Group of the R. O. T. C. unit elected, the student will be recommended as second lieutenant, Air Service Reserve Corps.

Those not physically qualified for the Air Service may enroll in the Advance Group of the unit originally selected, and upon satisfactory completion of the course will become eligible for a commission in the branch of the Officers' Reserve Corps represented by the unit selected.

### Band

#### FIRST SEMESTER

- 1a. Drill: Ceremonies, Musical Instruction. *One hour credit. Second Semester.*
- 2a. Fundamental Subjects in Military Training: Ceremonies: Musical Instruction. *One hour credit.*

### Summer Camps

#### SUMMER SESSION OF 1924

Summer Camps, six weeks in length, will be held in June and July for members of the R. O. T. C. Units. Attendance upon a camp during the Basic R. O. T. C. Group (first and second years) is optional. Attendance upon a camp during the Advanced Group (third and fourth years) is required of all students who elect a course of that group and who receive commutation of subsistence. No additional credit towards graduation is granted for these camps. Transportation, uniforms, subsistence, equipment, and medical attention will be provided by the government. Students attending the Advanced Camp receive pay at the rate of enlisted men 7th grade, which amounts to seventy cents per day.

Coast Artillery Corps. Fort Monroe, Old Point Comfort, Va., June 14 to July 26. Artillery Material, Drill and Target Practice Infantry Drill, Marksmanship, Guard Duty, Motor Transportation, Equestrian, Swimming, Physical Training.

Signal Corps. Camp Custer, Mich., June 14 to July 26. Practical work in the use of Signal Corps equipment, Pistol marksmanship, Field Maneuvers.

Infantry. Camp Custer, Mich., June 24 to July 26. Infantry Drill, Guard Duty, Infantry Weapons, Marksmanship, Military Sketching, Accompanying Weapons, Minor Tactics, Musketry, Equestrian, Swimming, Physical Training, Athletics.

Ordnance. Aberdeen Proving Ground, Md., June 24 to July 26.

Practical work in firing and otherwise testing or operating all types of ordnance equipment, including guns, carriages, ammunition, tanks, tractors, drop bombs, etc.

### MINERALOGY AND PETROGRAPHY

All courses offered by this department are given in the Mineralogical Laboratory which is located in the northeast corner of the Natural Science Building. The mineral collections, Room 222, are open for inspection daily whenever the University is in session from 9 to 12 A. M. and 2 to 4 P. M.

Courses 1, 2, 16, 17, and 17a are beginning courses. Course 1 is designed to meet the needs of students desiring an elementary knowledge of Mineralogy, and may be followed by Courses 4 and 5, or 9. Students desiring a more comprehensive beginners' course are advised to elect Course 2, which serves as the basis for the more advanced work of the department. Course 17 is designed to give a general knowledge of gems and gem minerals, and is open to all students, no previous training in mineralogy or the sciences being necessary. Students desiring a more intimate knowledge of gems should also elect the laboratory work, designated as Course 17a. Students of Chemistry and Chemical Engineering are advised to take Courses 2 and 5, or Courses 1, 4, and 5. Course 16 is designed especially for students of Architecture. A description of all courses offered in this department may be found on page 331.

#### FIRST SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours credit.* Professor KRAUS, Assistant Professor PECK, and Mr. RAMSDALL.

This course includes the elements of crystallography, physical and chemical properties, occurrences, uses, and determination of more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

- [2. General Mineralogy. Lectures and laboratory work. *Five hours credit.* Professors KRAUS and HUNT, and Assistant Professor PECK.

Students who have successfully completed Course 1 may elect this course as Course 2a and receive *three hours credit*.

Principles of crystallography, physical, and chemical properties, origin, formation, decomposition, distribution, uses, and determination of the more important minerals. Prerequisites: Chemistry 2 and 3.

Omitted in 1923-1924.]

4. Determinative Mineralogy. Laboratory work. *Two hours credit*. Mr. RAMSDELL.

Intended for students who have completed Course 1 and wish to become more proficient in the determination of minerals by means of their physical characters.

5. Qualitative Blowpipe Methods. *Two hours credit*. Professor HUNT.

This course involves the use of blowpipe reactions upon charcoal and plaster tablets, as well as other chemical methods useful in the determination of minerals. Prerequisites, Course 2 or Courses 1 and 4 in Mineralogy, or Courses 3a and 3b in chemistry.

9. Lithology. Lectures and laboratory work. *Two hours credit*. Professor HUNT, and Mr. HOLDEN.

12. Quantitative Blowpipe Methods. Reading and laboratory work. *Two hours credit*. Professor HUNT.

Practice in assaying by blowpipe methods of various kinds of ores, especially those of gold, silver, copper, and lead.

Prerequisite: Course 5.

The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination, and uses of the more important rocks. In the laboratory the student is required to determine by means of the macrophysical properties a large number of rock specimens. Field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field. Prerequisites, Mineralogy 1 and Geology 1.

10. Petrography. Lectures and laboratory work. *Three or four hours credit*. Professor HUNT.

After reviewing the optical characters and methods of investigation of crystals, the various properties of the important rock minerals are discussed in detail. The mineralogical and chemical composition, texture, genesis, forms of occurrence, and metamorphism of rocks are then studied. The laboratory work is devoted to the systematic study of rock minerals and rocks with the aid of the polarizing microscope. Prerequisites, Mineralogy 2 or 1 and 4, 6 or 6a, and 9.



## SECOND SEMESTER

1. Elements of Mineralogy. Lectures and laboratory work. *Two hours credit.* Professor KRAUS, Assistant Professor PECK, and Mr. RAMSDELL.

This course includes the elements of crystallography, physical and chemical properties, occurrence, uses, and determination of the more common minerals. For this course a knowledge of elementary inorganic chemistry is necessary.

4. Determinative Mineralogy. Laboratory work. *Two hours credit.* Mr. RAMSDELL.

Intended for students who have completed Course 1 and wish to become more proficient in the determination of minerals by means of their physical characters.

6. Physical Crystallography. Lectures and laboratory work. *Five hours credit.* Four lectures and *three hours* laboratory work a week. Professor KRAUS, Assistant Professor PECK, and Mr. RAMSDELL.

This course involves a critical study of the various properties of crystals, including the use of the polarizing microscope and other crystallographic optical instruments.

Must be preceded by Course 2, and, if possible, by Course 3.

Students desiring to study only the optical properties of crystals may elect this course as 6a and receive *four hours credit.*

9. Lithology. Lectures and laboratory work. *Two hours credit.* Professor HUNT and Mr. HOLDEN.

The lectures include, aside from a review of the rock-forming minerals, a discussion of the origin, modes of occurrence, alterations, methods of determination, and uses of the more important rocks. In the laboratory the student is required to determine by means of the macro-physical properties a large number of rock specimens. Field excursions will also be made in order to acquire facility in the rapid determination of rocks in the field. Prerequisites, Mineralogy 1, and Geology 1.

11. Petrography. Lectures and laboratory work. *Three or four hours credit.* Professor HUNT.

This is a continuation of Course 10.

16. Mineralogy and Lithology. *Three hours credit.* Professor HUNT and Mr. HOLDEN.

This course is designed especially for students in architecture. Open to others only by special permission.

The first half of the course discusses the physical and chemical properties, uses, and determination of the common rock forming minerals, and of those ores from which the metals and materials commonly used for building purposes are obtained.

The second half is devoted to a discussion of the origin, modes of occurrence, description and uses of the common rocks, with special emphasis upon those employed for structural and ornamental purposes.

For this course a knowledge of elementary inorganic chemistry is necessary.

17. **Gems and Precious Stones.** Lectures and demonstrations. *Two hours credit.* Professor KRAUS and Mr. HOLDEN.

This course discusses the general properties, occurrence, determination, and history of the various minerals used as gems and gem minerals. The various methods of distinction, especially for imitations and synthetic gems, will also be considered. No previous training in mineralogy or the sciences is required, although an elementary knowledge of chemistry and physics is highly desirable.

- [17a. **Gems and Precious Stones.** Laboratory work. *One hour credit.* Professor KRAUS and assistants.

Students are given an opportunity to familiarize themselves with the various methods used in the scientific determination of gems and gem minerals. Must be accompanied or preceded by Course 17. Omitted in 1923-1924.]

#### SUMMER SESSION OF 1924

(See College of Literature, Science, and the Arts.)

### MODERN LANGUAGES

Professors WAIT, LEE, ADAMS, and KENYON, Assistant Professors WILD, and ALBALADEJO, Mr. JOBIN, Mr. BRITTON, Mr. GAISS, Mr. ANDERSON, Mr. MCGUIRE, and Mr. LUZUNARIS.

#### German

The aim of the instruction in German is to help the student to a reading and speaking knowledge of the language. Special attention is paid to scientific and technical literature. Elective courses are offered for the accommodation and benefit of students who have the time and inclination to carry their language work beyond the limits of the required courses.

#### BOTH SEMESTERS

1. **Elementary Course.** Grammar and reading with constant practice in writing and speaking German. *Four hours credit.*
2. **Elementary Course continued.** *Four hours credit.*
3. **Intermediate German.** *Four hours credit.*

4. German Scientific and Technical Literature. *Four hours credit.*
  5. Advanced Course in German Technical Literature. *Two hours credit.*
  9. German Chemical Reading. *Two hours credit.* (First semester only.) Professor LEE.
- This course is equivalent to Chemistry 20.

SUMMER SESSION OF 1924

(See College of Literature, Science, and the Arts.)

**French**

The aim of the instruction in French is to help the student to a reading and speaking knowledge of the language. Elective courses are offered for the accommodation and benefit of students who have the time and inclination to carry their language work beyond the limits of the required courses.

BOTH SEMESTERS

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking French. *Four hours credit.*
2. Elementary Course continued. *Four hours credit.*
3. Intermediate French. *Four hours credit.*
4. Advanced French. *Four hours credit.*
5. Advanced Composition and Conversation. *Two hours credit.* Mr. JOBIN.

This course may be taken only after completing French 4 or its equivalent.

6. French Literature in English. An outline of the development of French literature. Lectures, assigned readings, and reports. *Two hours credit.* Professor ADAMS.

This course is intended as a general lecture course. No knowledge of French is required. Open to students who have completed the regular language requirements.

9. French Chemical Reading. *Two hours credit.* (Second semester only.) Equivalent to Chemistry 20a. Professor LEE.

SUMMER SESSION OF 1924

15. Beginners' Course. *Six hours credit.* Mr. BRITTON.
1. Beginners' Course. *Four hours credit.* Professor LEE.

### Spanish

The aim of the instruction in Spanish is to help the student to a reading and speaking knowledge of the language. Special courses are offered to meet the demands of students looking forward to a professional career in countries where Spanish is the prevailing medium of communication.

Opportunity for advanced work in Spanish is offered to students who desire to make themselves specially proficient in this language.

#### BOTH SEMESTERS

1. Elementary Course. Grammar and reading, with constant practice in writing and speaking Spanish. *Four hours credit.*
2. Elementary Course continued. *Four hours credit.*
3. Reading, Conversation, and Correspondence. *Four hours credit.*
4. A Continuation of Course 3. *Four hours credit.*
5. Advanced Composition and Conversation. *Two hours credit.* Assistant Professor ALBALADEJO.

This course may be taken only after completing Spanish 4 or its equivalent.

6. Spanish Literature in English. An outline of the development of Spanish literature. Lectures, assigned readings, and reports. *Two hours credit.* Professor KENYON.

This course is intended as a general culture course. No knowledge of Spanish is required. Open to students who have completed the regular language requirements.

#### SUMMER SESSION OF 1924

(See College of Literature, Science, and the Arts.)

### NAVAL ARCHITECTURE AND MARINE ENGINEERING

#### FIRST SEMESTER

1. Naval Architecture. Structural design. Lectures and recitations. *One hour credit.* Professor SADLER.
3. Naval Architecture. Stability and rolling of ships and preliminary design. Lectures and recitations. *Three hours credit.* Professor SADLER.
5. Naval Architecture. Mould loft and structural drawing. *Two hours credit.* Assistant Professor LINDBLAD.
6. Naval Architecture. Ship drawing and design. *Three hours credit.* Professor BRAGG, and Assistant Professor LINDBLAD.

8. Marine Boilers. Lectures and recitations. *One hour credit.* Professor BRAGG.
10. Marine Boiler Design. *Three hours credit.* Professor BRAGG, and Assistant Professor LINDBLAD.

SECOND SEMESTER

2. Naval Architecture. Ship calculations and strength. Lectures and recitations. *Three hours credit.* Professor BRAGG.
4. Naval Architecture. Resistance and propulsion of ships, and screw propellers. Lectures and recitations. *Three hours credit.* Professor SADLER.
5. Naval Architecture. Mould loft and structural drawing. *Two hours credit.* Assistant Professor LINDBLAD.
7. Naval Architecture. Ship drawing and design. *Three hours credit.* Professor SADLER, and Assistant Professor LINDBLAD.
9. Marine Engines. Lectures and recitations. *Two hours credit.* Professor BRAGG.
11. Marine Engine Design. *Two or three hours credit.* Professor BRAGG.

BOTH SEMESTERS

*Primarily for Graduates.*

12. Experimental Tank Work. *One, two or three hours credit.* Professors SADLER and BRAGG.
13. Ship and Engine Specifications. *One or two hours credit.* Professor SADLER.
14. Shipyard Plants. *One hour credit.* Professor SADLER.
15. Naval Architecture. Advanced reading. *Three hours credit.* Professor SADLER.
16. Advanced Drawing. *Three to five hours credit.* Professor SADLER, and Assistant Professor LINDBLAD.
17. Marine Engines. Advanced reading. *Three hours credit.* Professor BRAGG.
18. Marine Engines. Advanced drawing and design. *Three to five hours credit.* Professor BRAGG.

# PHYSICS

Professors RANDALL, WILLIAMS, COLBY, SMITH, Assistant Professors RICH, SLEATOR, LINDSAY, MEYER, BARKER, and SAWYER, Dr. KLEIN, Dr. DUFFENDACK, Dr. CORK, Dr. KIMBALL, Mr. St. PETER, Dr. COOLEY, Mr. BRONK, Mr. FRUTH, Mr. LOCKROW, Mr. MARTIN.

Z. Physics for Admission. This course is intended for students who have not presented the required unit of entrance physics. It is required for admission to Courses 1 and 1E. No credit will be allowed for this course. Four times a week, first semester. Mr. MARTIN.

1. General Physics. Mechanics, Sound and Heat. Lectures and recitations four times a week, and laboratory work. Both semesters. Professors RANDALL and COLBY, Assistant Professors LINDSAY and SLEATOR, Mr. FRUTH and Mr. LOCKROW.

1a. Physical Problems, once a week. Both semesters. Assistant Professor SLEATOR.  
Students in Architecture 1 and 2 elect 1 and 1a for *four hours credit*.

1E. Mechanics Sound, and Heat. Lectures, recitations, and laboratory work. *Five hours credit*. Both semesters. Professor RANDALL, Assistant Professor RICH, Dr. DUFFENDACK, Dr. COOLEY, Dr. KIMBALL, Mr. BRONK and Mr. St. PETER.

For Courses 1 and 1E a knowledge of plane trigonometry is indispensable. No student is admitted to the class who has not had the preparatory course in Physics.

In Course 1E at least half the semester is devoted to elementary Mechanics; the remainder of the time to Sound and Heat, all with experimental illustrations. All members of the class have one period a week in the laboratory.

2. General Physics. Magnetism, Electricity, and Light. Lectures and recitations, four times a week, and laboratory work. Both semesters. Professors RANDALL and COLBY, Assistant Professors SLEATOR and LINDSAY, Dr. BARKER, Mr. FRUTH and Mr. LOCKROW.

2a. Physics Problems, once a week. Both semesters.

2E. Magnetism, Electricity, and Light. Lectures, recitations, and laboratory work. *Five hours credit*. Both semesters. Professor RANDALL, Assistant Professors RICH, Dr. DUFFENDACK, Dr. COOLEY, Dr. KIMBALL, Mr. BRONK, and Mr. St. PETER.

Course 2E must be preceded by Course 1E and by Course 2E in chemistry or an equivalent. It is a continuation of Course

1E and takes up the fundamental phenomena and laws of these subjects, with ample class illustrations. Laboratory work as in Course 1E.

Courses 1E and 2E are required from all Engineering students. Students transferring their credits from the College of Literature, Science, and the Arts will be required to offer Courses 1, 1a, 2, and 2a as equivalents of Course 1E and 2E.

- 3 and 4. Modern Physics. *Two hours.* Throughout the year. Professor RANDALL, Assistant Professor BARKER and other members of the staff.

Informal lectures and discussions, with demonstrations treating radioactivity, X-rays, the vacuum tube, and other electron and allied phenomena which lead to the theory of matter. The courses will be non-mathematical, requiring as prerequisite Courses 1 and 2 or 1E and 2E.

Courses 3 and 4 undertake to meet the needs both of those students who desire accurate information about recent work for the purpose of general culture and of those specializing in other sciences in which the newer physics has an increasing importance. Students specializing in Physics will also find them a suitable introduction to advanced courses.

5. Electrical Measurements. Lectures, recitations, and laboratory work. *Four hours.* First semester. Professor SMITH and Assistant Professor SAWYER.

In the class work the principles of electrical behavior are critically studied and discussed. The laboratory exercises are designed to illustrate and emphasize these principles, and to give the student some personal experience in the careful use of electrical measuring instruments. The course includes the modern methods of measuring current, resistance, electromotive force, and power, and the calibration of the instruments employed.

- 5E. Electrical Measurements. Lectures and laboratory work. *Four hours.* Both semesters. Assistant Professor SAWYER.

The course includes the modern methods of measuring current, resistance, electromotive force, capacity, inductance, and hysteresis of iron, and the calibration of the instruments employed.

Course 5E must be preceded by 1E and 2E, or their equivalents.

6. Electrical Measurements. Lectures and laboratory work. *Four hours.* Second semester. Professor SMITH.

This is a continuation of Course 5, and includes measurements of capacity, self and mutual inductance, and the fundamental measurements with alternating currents. Especial attention is given to the theory of the magnetic circuit and the deter-

mination of the magnetization and hysteresis curves of iron and steel.

A working knowledge of the calculus is required.

7. *Mechanics. Three hours.* First semester. Assistant Professor LINDSAY.

The mechanics of solids, liquids and gases, involving such topics as the various types of motion, moments of inertia, elasticity, friction, viscosity, capillarity, etc. A knowledge of calculus is required.

8. *Architectural Acoustics. Two hours.* Assistant Professor RICH. Lectures, with illustrative problems on sound transmission, distribution, and absorption, and an experimental study of the acoustical properties of certain rooms.

9. *Sound. Four hours.* First semester. Assistant Professor RICH. The class work is based on Barton's *Text Book on Sound*, with lectures and reference reading.

11. *Heat. Four hours.* First Semester. Dr. CORK.

The classroom work covers the fundamental principles of heat phenomena. It includes such subjects as expansion, specific heats and temperature, change of state and Van der Waals' equation, elementary kinetic theory, and the absolute scale of temperature.

In the laboratory special emphasis is placed on modern accurate methods of measuring various heat quantities, the need of the determination which often rises in the course of scientific experimentation and research. The student is made familiar with the gas thermometer, thermopile, interferometer, measurement of thermal expansion, measurement of specific heats, heats of fusion and of vaporization, thermal conductivities, etc.

12. *Light. Four hours.* Lectures, recitations and laboratory work. Assistant Professor MEYER.

This is an intermediate theoretical and experimental course. A knowledge of Calculus is required.

14. *Electron Theory and Radioactivity. Two hours.* Lectures and laboratory work. Second semester. Professor SMITH.

The laboratory work deals largely with radioactive substances. The distinguishing characteristics of alpha rays, beta rays, and gamma rays are studied, and the half-life periods of several substances are determined by each student.

16. *Vacuum Tubes in Radio Communication. Two hours.* Lectures and laboratory work. Second semester. MR. BRONK.

The theory of the transmission of electricity through gases will be treated in this course, together with a study of the different



types of tubes used in radio work. The characteristics of such tubes will be determined experimentally and the electric circuits employed in their use will receive considerable attention. Prerequisites: Course 5E in Physics, and a course in alternating currents.

18. Measurement of High Temperatures. *Two hours.* Second semester. Dr. CORK.

An experimental course accompanied by lectures covering the present method of high temperature measurement. It includes the calibration and use of the resistance thermometer, the resistance thermometer bridge, the thermocouple, the thermocouple potentiometer, and various technical types of indicators and recorders, the total radiation and optical pyrometers, and laboratory methods of producing high temperatures. The subject matter is taken up from both a practical and a theoretical standpoint.

31. Thermodynamics. *Three hours.* First semester. Professor COLBY.

This course will treat the two laws from the points of view of Physics (31) or Chemistry (24). The former will be mathematically more rigorous and will in its application prepare for such physical problems as gas theory, radiation, etc. The second course will emphasize in application such problems as the phase rule and chemical equilibrium. Both courses may be elected by the same student, but the total credit will then be reduced to *five hours*.

24. Thermodynamics. *Three hours.* Second semester. Professor COLBY.

This course, as described under 31, for the first semester, will treat the subject from the standpoint of chemistry.

25. Theory of Heat. *Two hours.* First semester only. Professor RANDALL.

Course 25 must be preceded by Course 2E.

27. 28. Electricity and Magnetism. *Two hours.* Throughout the year. Dr. KLEIN.

These courses must be preceded by Course 2E. A knowledge of the calculus is required. They are devoted to a mathematical as distinguished from an experimental study of electrical phenomena.

32. The Kinetic Theory of Gases. *Three Hours.* Second semester. Dr. KIMBALL.

Discussion of the laws of probability, Maxwell-Boltzman law, molecular magnitudes, Brownian movements and Einstein's

equations, absorption of gases, and other selected topics. Experimental methods will be considered.  
Prerequisites: General Physics and calculus.

36. X-Rays. *Three hours.* Second semester. Assistant Professor LINDSAY.

The fundamental facts and theories connected with the production and measurement of X-Rays, together with a study of the development of the subject and its bearing on modern ideas of the structure of matter.

37. German Reading. *Two hours.* First semester. Professor LEE. In this course the subject of Physics is studied in German to acquaint the student with the technical terms used in modern German Physics.

This course may be taken only by such students as convince the instructor of their satisfactory preparation.

Course 37 is continued in the second semester as Course 28, *two hours.*

#### SUMMER SESSION OF 1924

(See College of Literature, Science and the Arts.)

### SHOP PRACTICE

All courses in shop practice are under the direction of Assistant Professor BOSTON, Acting Director of Shops. Instruction is given in the various branches by specialized instructors and assistants.

During the last year the various courses in shop work have been completely revised. At the present time there are courses in the specific subjects for the students of the Colleges of Engineering and Dental Surgery and the School of Education. Each of these courses is designed to serve the individual School or College.

The object of the courses for engineering students is primarily to acquaint them with modern methods, appliances and fundamental principles. This has very largely supplanted the idea of manual training. The courses of instruction are divided into classroom or recitation periods in which texts, notes, lectures, lantern slides, etc., are used, and laboratory periods which begin with a series of standard exercises, designed to give familiarity with the common tools and machines used in the particular branch of work being pursued. The student thus becomes fitted to execute an ordinary piece of mechanical work by making application of the principles discussed in the classroom and at the same time acquires familiarity with sources of information bearing upon such work.

As occasion permits trips through industrial plants supplement laboratory work to acquaint the students with the commercial application of the courses.

Shop Courses 1, 2, 3, and 4 may be continued by advanced students as 1a, 2a, 3a, and 4a. Special arrangements are made for students who wish to take more advanced work or who desire to prepare themselves for teaching these subjects.

1. **Woodwork.** *Two hours credit.* Mr. YEATMAN.  
Bench, lathe, and simple pattern work. One-half day per week in shop, one hour being reserved for class room work.
2. **Metalwork.** *Two hours credit.* Mr. TELFER.  
Consists of a study of the principles and practice applied to the working and treating of wrought iron and steel. One-half day per week in the shop, of which one hour is spent in the class room.
3. **Foundry.** *Four hours credit.* Assistant Professor CAMPBELL and Mr. GRENNAN.  
Consists of a study of the principles and practice applied to cast metals, including gray iron castings, malleable iron castings, steel castings and various types of non-ferrous castings. Two half-days per week are given to this subject. One hour of each of these periods is spent in the class room. Must be preceded by Course 2.
4. **Machine Shop.** *Four hours credit.* Assistant Professor BOSTON, Mr. PERKINS, and Mr. REA.  
Two half-days per week in the shop and one classroom period. By lectures and assignments the following subjects are covered: industrial organization, accounting, stock records, standardization and time study, the cutting of metals,—lathe work, milling, drilling, reaming, tapping, broaching, grinding and buffing,—also gear cutting, jigs, special tools, standards, gages, manufacturing layouts automatic machines, die casting, punch and die work and spinning.
6. **Pattern Making.** *Two hours credit.* Mr. YEATMAN.  
Pattern making (advanced) consists of designing and constructing wood patterns from working drawings. Hours to be arranged.  
Must be preceded by Course 1.
7. **Jig and Fixture Design.** *Two hours credit.* Mr. PERKINS.  
This course consists of drawing periods supplemented by assignments which treat on the principles underlying the design, construction and application of such accessories to manufacture.
8. **Foundry Costs and Organization.** *Two hours credit.* Assistant Professor CAMPBELL.

This course is a study of foundry cost methods, foundry records and standard instructions for foundry operations.

Must be preceded by Shop 3.

9. Standardization of Labor. *Two hours credit.* Assistant Professor BOSTON.

This course treats on the employment of labor, wage payment in relation to standardized conditions and the position of labor in manufacture.

#### SUMMER SESSION OF 1924

15. Wood Work. *Two hours credit.* Mr. YEATMAN.
25. Metal Working and Treating. *Two hours credit.* Mr. TELFER.
35. Foundry. *Four hours credit.* Assistant Professor CAMPBELL.
45. Machine Tool Laboratory. *Four hours credit.* Assistant Professor BOSTON.

### GEODESY AND SURVEYING

#### GROUP I. *Elementary Surveying.*

Surveying 1, 2, and 3 are prescribed for students of Geodesy and Surveying, Civil Engineering, and Landscape Design. Courses 1 and 2 are given on the campus, while Course 3 is conducted at Camp Davis during the Summer Session.

Surveying 1 and 2 cover the fundamental theory, with sufficient field work to illustrate lectures and text and to familiarize students with the common surveying instruments. The subjects covered by Courses 1 and 2 are given in logical sequence. Particular attention is given to neat, full, and accurate field notes and to their orderly reduction.

Surveying 3, at Camp Davis, gives students opportunity to engage in more extensive surveys and to become accustomed to field conditions. The equipment for Course 3, in addition to transits, levels, and the usual accessories, includes a mean time chronometer, sextants, triangulation transits, instruments for use in making adjustments, an invar tape, a launch, and a number of row-boats. Office buildings are provided for housing field data, for mapping and for computations.

Surveying 4 is required of all students of engineering excepting those pursuing work in Geodesy and Surveying and Civil Engineering. The student is given an elementary introduction to the use of the transit and level, brief instruction in fundamental theory and in the keeping and reduction of simple field notes.

Surveying 5 embraces the theory of least squares as applied in geodetic and surveying enterprises. The theory is applied to problems that are familiar to the student.

Surveying 7, Municipal Surveying, is offered as an advanced course for all students who have completed Courses 1, 2, and 3. It comprises lectures, text, field and drawing room work, street surveys for the following purposes: location, fixing grades, paving, sewers, curbs, and minor details, the location of property lines and the planning and laying out of new subdivisions and additions. Special attention is given to the state laws governing surveys of this nature.

Surveying 9, Railway Surveying, may be elected by students who have completed Courses 1, 2, and 3. The course embraces the theory and practice of easement curves, turnouts, track problems, with exercises in location and re-location.

Surveying 12 and 13 run parallel with Courses 1 and 8, excepting that they cover slightly more ground. They are designed especially for students of Forestry.

#### GROUP II. *Topography.*

Surveying 21, Photography and Camera Surveying, embraces a brief history of photography, the design of the dark room and its equipment, the testing of lenses and cameras, developing plates, making prints, lantern slides and enlargements. Students are given a brief introduction into the application of photography in topographic surveying. The prerequisites are Courses 1 and 2 or 12 and 13 in surveying.

Surveying 22, Advanced Topographic Surveying, introduces topography as a special field. The methods of several branches of the government service are followed. The purposes for which topographic surveys are made are analyzed and special attention is given to uniform scale of maps, and connection with existing fundamental theories and processes covered in more elementary courses.

Surveying 23, Map Projections and Sketching, deals with the various systems employed in the preparation of maps by several departments of government service. Special attention is given to the polyconic system of projection. Topographic sketching is included in this course.

#### GROUP III. *Administrative.*

Surveying 31, History and Organization of Administrative Departments. This course deals with the history, organization and policies of several branches of the National Government which have been and are responsible for extensive surveys.

Surveying 32, Land Law, relates particularly to the elementary phases of the Common Law defining property interest in real estate.

Surveying 33, Land Law, is a continuation of Course 32.

Surveying 34, Registration of Land Title, deals with such legislation as the Torrens Act and various modifications thereof.

Surveying 35, Boundary Surveys, deals with the detail problems of the man in the field, such as directions, monuments, witnesses, bearing marks, old boundary lines, re-surveys, meander posts; also the interpretation of real property descriptions in deeds and public records. Special consideration is given the modern methods pursued by the General Land Office in re-surveys.

Surveying 36, Riparian Boundaries, deals with the boundary lines where lakes and river intervene. The Common Law Rules are composed with the principles in force in countries which have developed different regulations relating to water and land boundaries.

GROUP IV. *Geodesy.*

Geodesy 1 relates to the history of the science, its application to determine the shape of the earth, and its value in connection with extensive surveys.

Geodesy 2 is largely a reading course covering the operations of the Coast and Geodetic Survey and like surveys authorized by other governments.

1. Elementary Surveying. Lectures. Text-book and field practice. *Three hours credit.* Six sections. Professor CAREY, Assistant Professors BRODIE, BOUCHARD and MITCHELL, Mr. MCFARLAN, Mr. YOUNG, and Mr. BLEEKMAN.

Course 1 is given only during the first semester, field work being prosecuted until the first of December.

2. Continuation of Course 1. *Four hours credit.* Course 2 is given during the second semester only.
3. Summer work at Camp Davis, described above.
4. Use of instruments. Six sections. *Two hours credit.* Course 4 is offered both semesters and during the Summer Session.
5. Least Squares. *Two hours credit.* Professor JOHNSTON. Both semesters.
7. Municipal Surveying. *Two hours credit.* Assistant Professor BOUCHARD. Both semesters.
9. Railway Surveying. *One hour credit.* Professor MERRICK. Both semesters.
12. Surveying and Drawing. Elementary, for Students of Forestry. *Four hours credit.* Professor MERRICK. First semester only.
13. Continuation of Course 12, for Students of Forestry. *Four hours credit.* Professor MERRICK. Second semester only.

21. Photography and Camera Surveying. *Two hours credit.* Assistant Professor BRODIE. Both semesters.
22. Advanced Topographic Surveying. *Four hours credit.* Assistant Professor BOUCHARD. First semester only.
23. Map Projections and Sketching. *Three hours credit.* Professor MERRICK. First semester only.
31. History of Administrative Departments. *Two hours credit.* Professor JOHNSTON. First semester only.
32. Land Law. *Three hours credit.* Professor JOHNSTON. First semester only.
33. Land Law. *Three hours credit.* Professor JOHNSTON. Second semester only.
34. Registration of Land Titles. *Three hours credit.* Professor CAREY. Second semester only.
35. Boundary Surveys. *Three hours credit.* Professor JOHNSTON. Second semester only.
36. Riparian Boundaries. *Three hours credit.* Professor JOHNSTON. Second semester only.
1. Geodesy. *Three hours credit.* Assistant Professor MITCHELL. Second semester only.
2. Geodesy. *Two hours credit.* Assistant Professor MITCHELL. Second semester only.

SUMMER SESSION OF 1924

Course 4 is offered at Ann Arbor, and Course 3 at Camp Davis, Douglas Lake, Cheboygan County, Professor C. T. JOHNSTON, Director.

## COLLEGE OF ARCHITECTURE

### EQUIPMENT

The College of Architecture is housed in commodious quarters on the main floor of the Engineering building, immediately adjoining the library. The drafting rooms are well lighted and provided with drafting tables of special design. On the walls are hung a number of valuable original competition and measured drawings. The free-hand drawing room is situated on the top floor at the north end of the Engineering building. It is about sixty feet square, is lighted by means of windows and a north skylight, and is fully equipped for the instruction in free-hand drawing, pen and ink, water color, and drawing from life. There is a comprehensive collection of plaster casts of decorative and architectural form, pottery and textiles for painting from still life and several original drawings in pencil, color and pencil, pen and ink by D. A. Gregg, H. G. Ripley, and others. The architectural library is housed with the engineering library. It consists of a large amount of carefully selected reference and illustrative materials, and is made up of the standard books, about 1,800 volumes, portfolios of plates, photographs, and about 10,000 lantern slides. The leading architectural journals are also kept on file.

### PROGRAMS OF STUDY

Three four-year curricula or programs of study are offered. In each of these, provision is made for the essentials of a liberal education,—language, mathematics, science, and fine arts—for cultural electives, and for as much specific training in drawing, architectural design and history, construction, and building equipment as seems permissible during a period of four years.

Program I provides a general curriculum; in Program II, architectural design receives greater emphasis; while in Program III, advanced construction and the mechanical equipment of buildings are given a relatively large amount of time, particularly during the fourth year. The first year is practically identical for the four-year programs while the students in all these groups share the same classes in architecture during the first three years.

There is also a two-year program for special students, open under certain conditions to experienced architectural draftsmen; college graduates may also enter as special students.

A certificate is awarded upon the completion of the two-year program.



### SCHOLARSHIPS IN ARCHITECTURE

There are at present two scholarships for students of architecture, intended primarily for those just entering college. Preference is given to experienced architectural draftsmen and to students showing artistic ability.

There is also one foreign travel scholarship awarded to some member of the senior class each year.

### NATURE OF COURSES

*Architectural Design.*—In the courses in Architectural Design the students work out, in the drafting room, designs for a great variety of buildings, ranging from a small house to large public buildings, problems of a practical character being interspersed with more ideal ones. The aim throughout these courses, of which there are nine offered, is to develop the imagination, creative power, ability to work out the organism of a building, and skill in the clear and artistic presentation of the drawings.

The courses in Architectural Design are grouped as follows: Courses 4 and 5, Elementary Design; Courses 6 and 7, Intermediate Design; Courses 8, 9, and 10, Advanced Design; Courses 30 and 31, Graduate Design. Students must complete the requirements of one group before proceeding to the next. Students of average ability are able to complete this work in the usual number of years while those of unusual ability may do so in a shorter period.

In the course in *Allied Arts of Design*, designs are made for a piece of furniture, decorative glass, metal, and mosaic and of other objects or features commonly used in connection with architecture.

*Architectural Construction.*—The work in construction continues through three years and is conducted by means of lectures, quizzes, text-books, visits to buildings, and the preparation of working drawings. The character of building materials, their practical and artistic possibilities and the methods of present building practice are studied. The drawing work of the courses in construction begins with the making of working drawings of a small building. This includes the framing plans of the floors, walls, and roof, and full-size details of some essential portions. This is followed by the working drawings for a larger building of heavy construction and involves foundations, masonry walls, piers, columns, floors, roof, and details. This in turn, is followed by steel and re-inforced concrete construction, in the course of which girders, columns, trusses, and other structural work of a high, fire-proof building are designed. A course in the testing of materials is given in the senior year. Specifications are discussed in connection with the work in construction.

The courses in structural mechanics, strength and resistance of materials, testing of materials, and advanced construction or struc-

tural design are studied under specialists and given partly by the College of Architecture and partly by the departments of Engineering Mechanics and Civil Engineering.

*Heating and Ventilation.*—The course in heating and ventilation of buildings is given by the department of Mechanical Engineering.

*Building Sanitation.*—In this course the principles are studied which should guide the design and installation of drainage and supply systems of various types of buildings.

*History of Architecture.*—In these courses the technical and artistic development of the art of building is traced from earliest times to the present day. The causes and influences which helped mould the various modes of building are analyzed and wherever possible demonstrated by means of the stereopticon. Many of the important buildings of the world are fully illustrated and critically studied, the student thus gaining an appreciation of the finest achievements of his art. Not only are the buildings studied in their larger aspects, but also in many of their details of construction, form, and detail. Historic ornament is taken up with the architecture of the various periods, as also are decorative sculpture and color.

In addition to the above, all architectural students elect one or more courses in the history of art given by the department of Fine Arts in order to acquaint themselves with the development and masterpieces of painting and sculpture.

*Free-Hand Drawing. — Pen and Ink Rendering; Water Color Painting.* — Considerable attention is devoted to free-hand drawing by students of Architecture. They begin drawing from simple geometrical solids, involving the accurate representation of form in line and light and shade; simple decorative, natural and architectural, forms are next drawn, after which portions of the figures, the hand, foot, head, etc., are drawn from cast (Elementary Antique); then the entire figure is drawn from cast (Advanced Antique), after the satisfactory completion of which follows drawing from the living model.

Throughout this discipline, in the observation and artistic representation of line, form, proportion, light and shade, the aim is to develop in the student the power of free artistic expression. The student is advanced as rapidly as his progress warrants. The pencil, charcoal, and monochrome wash are used. A special course is provided for Architectural students in rendering in pen and ink. The instruction considers the character of such drawings necessary for reproduction. A course in painting in water color from still life is also required of students in Architecture, but may not be taken without first completing Courses 21 and 22 in Drawing, or their equivalent. Rendering in wash and color is carried on throughout the courses in design.

## REQUIREMENTS FOR GRADUATION

### The Degree of Bachelor of Science in Architecture

To earn the degree of Bachelor of Science in Architecture, the student must secure *one hundred and forty hours of credit\** in a prescribed curriculum, as given below, four hours of which must be earned by four months practical experience in an architect's office. A time limit is not set, but four years are usually needed for the work required for the degree.

Candidates for degrees in Architecture and in Architectural Engineering enroll in the College of Architecture upon entering the University. They elect one of the three four-year programs of study, which are substantially identical for the first year.

### HOURS CREDIT REQUIRED IN THE THREE FOUR-YEAR PROGRAMS AND IN THE TWO-YEAR PROGRAM FOR SPECIAL STUDENTS IN ARCHITECTURE

One hour of credit represents ordinarily about three hours of actual work during each week of one semester.

ARCHITECTURE:	I	II	III	Spl.
Elements of design .....	3	3	3	..
Architectural design .....	31	37	17	23
Allied arts design .....	3	3	..	..
History of architecture .....	8	8	6	8
Office work .....	4	4	4	..
CONSTRUCTION:				
Structural mechanics .....	6	6	7	..
Roofs and bridges, and framed structures.. ..	..	..	5	..
Construction (elementary) .....	2	2	2	2
Structural design (steel) .....	5	5	2	..
Masonry and reinforced concrete .....	4	4	5	..
Testing materials .....	..	..	2	..
Chemistry of materials .....	..	..	3	..
Surveying .....	..	..	2	..
BUILDING EQUIPMENT:				
Building sanitation .....	1	1	1	1
Heating and ventilation .....	2	2	2	2
Heat engines .....	..	..	4	..

\* One credit hour indicates for each week during one semester one recitation or lecture with two hours of preparation or three hours of drawing or laboratory work.

**DRAWING:**

Free-hand drawing .....	10	10	6	6
Water-color painting .....	2	2	..	2
Descriptive geometry and shades and shadows .....	3	3	3	1
Perspective and stereotomy .....	2	2	2	2

**SCIENCE:**

Mathematics .....	13	4	18	..
Physics .....	4	4	10	..
Acoustics .....	2	2	..	..
Chemistry .....	..	..	5	..
Geology or Mineralogy .....	3	3	3	..

**LANGUAGE:**

English .....	6	6	6	..
French or German .....	12	12	12	..

**GENERAL:**

Business Administration .....	3	3	..	..
History of Art .....	3	3	..	3
Landscape Design .....	..	3	..	..
Cultural and free electives .....	8	8	10	10
	140	140	140	66

**ARCHITECTURE**

**Architectural Design**

In the following courses in Architectural Design problems are assigned to be worked out in the drafting-room. Lectures are given from time to time bearing on the type of building then being designed. Study of the requirements of various classes of buildings and the artistic possibilities of building materials, training of the student in composition, in plan, section, elevation and perspective, in accurate draftsmanship, and in rendering in line, black-and-white, and color.

Courses 4 and 10, inclusive, constitute a progressive series of problems in architectural planning and design, advancing from the small building to the more important classes of buildings and to the group problem. The courses must be taken in the order given.

## FIRST SEMESTER

1. Elements of Design. *Three hours credit.* Assistant Professor BENNETT and Mr. O'DELL.  
An introductory course to the field of artistic design, decorative and architectural. Principles of design, and the possibilities in design of line, color, and form. Architectural elements, their function and form; the influence of material. The pier, lintel, arch, wall, openings; the plan and roof.  
Methods of indication; rendering, lettering. Drawing exercises and lectures. This course or its equivalent must precede all architectural design courses. It should be accompanied by Drawing 4a and 21.
4. Architectural Design. *Three hours credit.* Mr. MATHEWS.  
A continuation of Course 1; the orders and simple problems in design. Illustrated lectures and drawing exercises.  
Course 4 must be preceded by Course 1, Drawing 4a and 21.
5. Architectural Design. *Four hours credit.* Assistant Professor BENNETT and Mr. O'DELL.  
The small ensemble. Course 5 should be preceded by Drawing 5a and 22, and by Courses 4 and 21 in Architecture.
6. Architectural Design. *Four hours credit.* Professor BOYNTON.  
This course, a continuation of Course 5, should be preceded by Architecture 5 and by Drawing 22.
7. Architectural Design. *Six hours credit.* Professor ROUSSEAU.  
Plan problems.  
This course must be preceded by Architecture 6.
8. Architectural Design. *Six hours credit.* Professor ROUSSEAU.  
Plan problems.  
This course must be preceded by Architecture 7.
9. Architectural Design. *Six hours credit.* Mr. WHIRY.  
Advanced plan problems.  
This course must be preceded by Architecture 8.
10. Architectural Design. *Eight hours credit.* Professor ROUSSEAU.  
Advanced plan problems.  
This course must be preceded by Architecture 8 or 9.
30. Architectural Design. *Credit to be arranged.* Professor ROUSSEAU. Given in 1923-1924 by Professor SAARINEN.  
Special problems in planning and design. Must be preceded by the equivalent of Architecture 10.

### Technical and Historical Development of Architecture and Design

For students in Architecture, Courses 12, 13, and 14 assume some knowledge of history, drawing, and design; they should be elected in the order given. The purpose of these courses is to study the historical conditions, building materials and methods, planning and design, as well as the sculptured and painted decoration and ornament of the most important and significant works of architecture. The courses are carried on by means of illustrated lectures, conferences, drawing, exercises, and research.

13. Gothic, Renaissance and Modern Architecture. *Three hours credit.* Professor LORCH.

Should be preceded by Architecture 12.

The Gothic, Renaissance and Modern Architecture to European countries, and Architecture in the United States.

14. Architectural History Research. *Two hours credit.* Professor LORCH.

Must be preceded by Courses 12 and 13 and one year of architectural design.

An intensive study of the architecture of a specific period or country, and the making of one or more designs, embodying the results of this study.

- [15. General Course in the History of Architecture. *Three hours credit.* Professor LORCH.

The aim of this course is to give students seeking a liberal culture a survey of the development of the art of building. The temples, cathedrals, palaces, and other characteristic monuments of the ancient, medieval, renaissance, and modern styles, their design, sculpture, and painted decorations will be studied by means of lectures illustrated by the stereopticon, and collateral reading. The course is open to all students in the University, but cannot be counted towards graduation in architecture.

For students of art and archaeology desiring a more intensive study of the technical and historical development of architecture, Course 11, 12, 13, and 14 are recommended.

Omitted in 1923-1924.]

17. The Allied Arts of Design. *Three hours credit.* Mr. FOWLER.

A study of the elements of decorative design and ornament, and a survey of the decorative equipment of buildings, such as furniture, metal work, glass, ceramics, textiles, mural painting, and decorative sculpture.

Short problems in design, research work, illustrated lectures.

Prerequisites: Drawing 21 and 22.

- 17a. Decorative Design. *Three hours credit.* Mr. FOWLER.  
A continuation of Course 17.
- 17b. Decorative Composition. *Two hours credit.* Mr. PELIKAN.  
Elements and principles of decorative design as applied to typography, pageantry, wood block printing, engraving, advertising illustrating, costume design, and stagecraft.
18. Architectural Composition. *One hour credit.*  
This course supplements the courses in architectural design by a series of illustrated lectures.
33. Architectural history. Professor LORCH.  
A thesis on the architectural work of a period or on a particular monument. Must be preceded by the equivalent of Architecture 12, 13, and 14.

### Building Construction and Equipment

19. Architectural Mechanics. *Three hours credit.* Professor TROUT.  
The principle of equilibrium. Analysis of stresses in simple frames by graphic and algebraic methods. Must be preceded by Mathematics 1E and Physics 1.
20. Architectural Mechanics. Advanced Problems in Statics, Strength of Materials. *Three hours credit.* Assistant Professor NEWMAN.  
Must be preceded by Architecture 19.
- 22a. Structural Theory. *Three hours credit.* Assistant Professor NEWMAN. Both semesters.  
Must be preceded by E. M. 1 and E. M. 2.  
Recitations, problems, text, and occasional lectures. This course is devoted to a study of the laws of statics, moving and stationary loads, influence lines, reactions, shears, and moments in their relation to structures of various kinds. The practical design of beams and girders is given considerable attention.
- 23a. Structural Design. *Two hours credit.* Assistant Professor NEWMAN. Both semesters.  
Must be preceded or accompanied by Architecture 22a.  
Lectures and drafting accompanying Architecture 22a. A course in which are considered fundamental principles underlying structural design and their relationship to structural theory. The main object is to give the student the power to analyze such problems as arise in practice. Elementary forms in wood, cast iron, and steel are considered through the preparation of designs and working drawings. Emphasis is laid on the cultivation of careful, systematic, and practical habits of computation.

24. **Building Sanitation.** *One hour credit.* Professor McCONKEY.  
Plumbing and Drainage. A study of materials, fixtures, methods of assembling and modes of arrangement. Lectures and drawing.  
Prerequisites: Architecture 4 and 21.
26. **Masonry and Reinforced Concrete.** *Two hours credit.* Professor McCONKEY.  
Must be preceded by Architecture 19 and 20.  
Lectures, problems, text and assigned reading on building materials and methods of construction, with particular reference to reinforced concrete. Brick, stone, terra cotta, cements, and waterproofing are also considered; specifications and estimates.
27. **Structural Design; Masonry.** *Two hours credit.* First semester. Professor McCONKEY.  
Must be accompanied by Architecture 26.  
The design of foundations, columns, slabs, beams, and girders of various types as used in buildings.
36. **Concrete Theory.** *Three hours credit.* Assistant Professor NEWMAN.  
Recitations, problems, text, and lectures covering theory and design of masonry structures, with particular reference to reinforced concrete. Foundations and flat slab construction are studied.

### Drawing and Painting

The aim of the instruction in free-hand drawing and in painting is to teach accurate observation of form, proportions, light and shade, and color, and their artistic representation and interpretation, as a matter of general education and as part of a more specific training in pictorial or decorative art, or in architecture.

For the general student Courses 21, 22, and 24 will give an elementary training in drawing and painting. Course 30 provides more advanced work in painting; Courses 25, 26, and 27, more advanced training in drawing. Course 23 is a special course in the drawing of ornaments for students of architecture and decoration, while Course 35 is primarily for architectural students, although open to others. Outdoor sketching and painting can best be studied during the summer session.

At present there are no classes in portrait painting nor painting from the costume model, but such instruction can, under certain conditions, be arranged for groups of students who have adequate advanced preparation.

The drawing is done in pencil, crayon, charcoal, and pen and ink from various kinds of objects and models including ancient, medieval, renaissance, and modern ornament and sculpture. Rapid sketching from the figure is carried on as part of Courses 27 and 28 to stimulate indication of essentials.



The painting is done mostly in water colors, although non-architectural students may paint in oil; pastels are also used.

Still-life and other painting in water color or oil, cannot be studied profitably without some preliminary training in free-hand drawing (Drawing 21 and 22). For drawing from the living model some preliminary training is required from the antique (Drawing 25 and 26).

All the courses are given both semesters and instruction is given in Courses 21 and 26 inclusive every morning and afternoon. The hours for these and other courses are shown in the classification pamphlet of the Colleges of Engineering and Architecture published at the beginning of each semester.

In general, six hours class work per week for a semester are required for a two-hour credit course. A given course must be elected with a single instructor and in periods of not less than two hours consecutively.

Advancement in all these courses is individual, depending on the progress made by the student and determined largely by work done without criticism. Advanced standing may be had as in other subjects on the basis of satisfactory work done elsewhere. Drawings should be brought to help determine the student's standing, also letters or certificates from the institution attended.

The following courses are open to others as well as architectural students. The courses are to be elected as Drawing 21, 22, etc., and in the order given.

21. Free-Hand Drawing. *Two hours credit.* Mr. MAKIELSKI, Mr. PELIKAN, and Miss HELLER.  
Drawing from geometrical forms and simple objects in line, and light shade.
22. Free-Hand Drawing. *Two hours credit.* Mr. MAKIELSKI, Mr. PELIKAN, and Miss HELLER.  
Drawing from simple decorative forms, natural and architectural.
23. Free-Hand Drawing. *Two hours credit.* Mr. PELIKAN, Mr. MAKIELSKI.  
Drawing from decorative forms and portions of the figure.
24. Water Color Painting. *Two hours credit.* Mr. PELIKAN, Mr. MAKIELSKI.  
Painting from still life.
- 25 and 26. Free-Hand Drawing. *Two hours credit, each.* Mr. MAKIELSKI, Mr. PELIKAN.  
Drawing from the full figure.
- 27 and 28. Free-Hand Drawing. *Two hours credit, each.* Mr. MAKIELSKI, Mr. PELIKAN.  
Drawing from life.

Admission to these courses is limited to those who have satisfactorily completed the preceding courses or their equivalent.

30. Water Color Painting. *Two hours credit.* Mr. MAKIELSKI, Mr. PELIKAN.

Painting in water color from still life. This course must be preceded by Drawing 24.

33. Clay Modeling. *Two hours credit.* Mr. ANGELL.

35. Pen and Ink. *One or two hours credit.* Mr. BARNES.

For regular students of architecture this course must be preceded by Courses 4a, 21, 22, and 23 in Drawing, and Architecture 5. Students not registered in Architecture should have the equivalent of six credit hours in free-hand drawing before electing it.

38. Life Sketching from Costumed Model. *One or two hours credit.* Mr. PELIKAN.

#### SECOND SEMESTER

#### Architectural Design

In the following courses in Architectural Design problems are assigned to be worked out in the drafting room. Lectures are given from time to time bearing on the type of building then being designed. Study of the requirements of various classes of buildings and of the artistic possibilities of building materials; training of the student in composition in plan, section, elevation, and perspective, in accurate draftsmanship and rendering in line, wash, and color.

Courses 4 to 10 inclusive constitute a progressive series of problems in architectural planning and design, advancing from the small building to the more important classes of buildings and to the group problem. The courses must be taken in the order given.

1. Elements of Design. *Three hours credit.* Assistant Professor BENNETT and Mr. O'DELL.
4. Architectural Design. *Three hours credit.* Mr. O'DELL.  
The orders and problems in which they are employed. This course must be preceded by Drawing 4a, Drawing 21, and Architecture 1.
5. Architectural Design. *Four hours credit.* Professor BOYNTON, and Mr. O'DELL.  
The small ensemble. Should be preceded by Drawing 5a and 22, and by Architecture 4 and 21.
6. Architectural Design. *Four hours credit.* Professor BOYNTON.  
Must be preceded by Architecture 5.

7. Architectural Design. *Six hours credit.* Professor ROUSSEAU.  
Plan problems.  
Must be preceded by Architecture 6.
8. Architectural Design. *Six hours credit.* Professor ROUSSEAU.  
Plan problems.  
Must be preceded by Architecture 7.
9. Architectural Design. *Six hours credit.* Mr. WILBY.  
Advanced plan problems.  
Must be preceded by Architecture 8.
10. Architectural Design. *Eight hours credit.* Professor ROUSSEAU.  
Advanced plan problems. Must be preceded by Architecture 8 or 9.

#### Technical and Historical Development of Architecture and Design

12. Ancient and Medieval Architecture. *Three hours credit.* Second semester. Professor LORCH.  
Should be preceded by Drawing 21 and accompanied by Architecture 4.  
The architecture of Egypt, Assyria, Persia, Greece, and Rome and a survey of the subsequent architectural development to Gothic architecture.
17. The Allied Arts of Design. Lectures, research, and exercises in design. *Three hours credit.* Mr. FOWLER.  
This is a repetition of Course 17 of the first semester.
- 17a. Decorative Design. *Three hours credit.* Mr. FOWLER. A continuation of Course 17.
- 17b. Decorative Composition. *Two hours credit.* Mr. PELIKAN.  
This is a repetition of Courses 17b of the first semester.

#### Building Construction and Equipment

19. Architectural Mechanics. Statics. Stresses in Simple Trusses. *Three hours credit.* Professor TROUT.
20. Architectural Mechanics. Advanced Problems in Statics. Strength of Materials. *Three hours credit.* Assistant Professor NEWMAN.  
Must be preceded by Architecture 19.
21. Wood Construction. Lectures, conferences, text-books, drawings, and visits to buildings. *Two hours credit.* Professor McCONKEY.

Building materials and processes; primarily wood construction; working drawings.

22. Steel and Fireproof Construction. *Three hours credit.* Professor McCONKEY.

Must be preceded by Architecture 19 and 20.

Lectures, problems, notes, and assigned reading on building materials and methods of construction, with particular reference to steel and enclosing and protection materials against fire and other destructive elements. Design of columns, beams, plate girders, and trusses; specifications and estimates.

- 22a. Structural Theory. *Three hours credit.* Assistant Professor NEWMAN.

Must be preceded by E. M. 1 and E. M. 2.

This is a repetition of Course 22a of the first semester.

23. Structural Design: Steel. *Two hours credit.*

Must be accompanied by Architecture 22.

Working drawings and details of a steel-frame building.

- 23a. Structural Design. *Two hours credit.* Assistant Professor NEWMAN.

Must be preceded or accompanied by Architecture 22a.

This is a repetition of course 23a of the first semester.

25. Building Details. *Two hours credit.* Professor BOYNTON.

Must be preceded by Architecture 6, 21, and 22.

The purpose of this course is to give some specific training in detailing portions of buildings. Scale and full-size details.

- 35a. Structural Theory (Advanced). *Four hours credit.* Assistant Professor NEWMAN.

Must be preceded by Architecture 22a and a course in reinforced concrete.

Recitations, problems, text, and lectures. This is extended course in continuation of Architecture 22a. Part I, nine weeks, treats of the computation and design of structures of wood, metal, and masonry of algebraic and graphical methods. Subjects considered are the theory of columns, trusses of various kinds, mill building bents, and portals, earth pressure, buttresses and retaining walls.

Part II, six weeks, treats of the theory of least work, the slope deflection method, and higher framed structures. Study is devoted to the analysis of wind stresses in buildings.

The object is to train further the student in the application of the principles of mechanics to the design of structures with special reference to building work.

**35<sup>B</sup>. Structural Design (Advanced). *Three hours credit.* Assistant Professor NEWMAN.**

Must be preceded by Architecture 22a, 23a, and preceded or accompanied by Architecture 35a.

Lectures, occasional problems, and drafting. A course in which are prepared complete designs and working drawings of a structural frame building of steel and concrete. Great importance is placed upon the study of the details of the design. Special attention is devoted to types and methods of constructing foundations for buildings, materials of construction, and protection materials against fire and other destructive agencies.

**Free-Hand Drawing and Painting**

These courses are required of architectural students, but may be elected by others.

**21 and 22. Elementary Free-Hand Drawing. *Two hours credit.* Mr. MAKIELSKI, Mr. PELIKAN, and Miss HELLER.****23. Drawing of Decorative Form. *Two hours credit.* Mr. PELIKAN, Mr. MAKIELSKI.****24. Painting in Water Color from Still Life. *Two hours credit.* Mr. MAKIELSKI and Mr. PELIKAN.****25 and 26. Drawing from the Antique. *Two hours credit.* Mr. PELIKAN.****27 and 28. Drawing from Life. *Two hours credit.* Mr. MAKIELSKI and Mr. PELIKAN.****35. Pen and Ink. *One or two hours credit.*****SUMMER SESSION OF 1924****4. Study of the Orders. *Three hours credit.* Professor ROUSSEAU.****5 and 6. Elementary Architectural Design. *Three hours credit.* Professor ROUSSEAU.****7 and 8. Intermediate Architectural Design. *Credit to be arranged.* Professor ROUSSEAU.****9 and 10. Advanced Architectural Design. *Credit to be arranged.* Professor ROUSSEAU.****B. Outdoor Drawing and Painting. *Two hours credit.* Mr. SLUSER.**

Art Courses for Supervisors, Art Instructors, Grade Teachers, and School Principals. *Credit to be arranged.* (The total credit which may be earned in one Summer Session is limited to eight hours.) Miss \_\_\_\_\_.

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1. Elementary or Primary Course.
  2. Advanced Course for Grammar Grades and High School.  
These courses will include nature study, industrial art, object drawing, construction, poster designing, costume designing, interior decoration, and home planning and landscape gardening.
  3. Course in Industrial Arts for the Elementary School.

# Medical School

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*A special announcement giving further information in regard to this School is published annually. For copies of this Announcement, or for other information relating to the School, address Dr. Hugh Cabot, Dean of the Medical School, Ann Arbor, Michigan.*

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The Medical School for which provision was made in the legislative act by which the University was organized in 1837, was opened for students in 1850. The college year was lengthened from six to nine months in 1877. The course was lengthened to three years in 1880, and to four years in 1890.

By action of the Board of Regents, the Homoeopathic Medical School and the Medical School of the University were amalgamated June 30, 1922. It was specifically understood and conditioned that a homoeopathic ward for men and a homoeopathic ward for women should be maintained, as well as two free beds for Ann Arbor city patients.

The academic year extends from Tuesday, September 23, 1924, to Monday, June 15, 1925. The lectures continue until early in June. The examinations are then begun, and concluded in time for the Commencement exercises.

For the summer session of this school, see a subsequent chapter.

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## REQUIREMENTS FOR ADMISSION

**Important Notice.**—By action of the Medical Faculty, approved by the Board of Regents, all applications for admission to the Medical School, with full credentials, must be filed with the Dean on or before July 15.

The following will be admitted to the Medical School as candidates for the Degree of Doctor of Medicine:

I. Graduates of the College of Literature, Science, and the Arts of this University, or of collegiate departments of other universities, or of approved colleges and scientific schools, provided they present credentials showing that they have had two years of Latin, two years

of either French or German (one of which must have been taken in college), and one year of collegiate work in Biology (Zoölogy and Botany), Chemistry (including Organic Chemistry), and Physics (including laboratory). Applicants holding graduate degrees, namely, A.M., M.S., Ph.D., and D.Sc., are subject to the same regulations.

II. Students registered on the combined curriculum in Letters and Medicine, offered in this University, and who have followed this curriculum as outlined, may enroll in the Medical School after having obtained 67 hours (B.S. and M.D. degrees) in the College of Literature, Science, and the Arts, or 90 hours (A.B. and M.D. degrees), if they meet the other requirements. (See Combined Curriculum in Letters and Medicine.)

III. Matriculate candidates for the bachelor's degree (a) of the College of Literature, Science, and the Arts of this University, and (b) of the collegiate department of other universities, and of approved colleges and scientific schools, who can present evidence of being graduates of an approved high school, and in addition thereto can bring from the Dean of the College of Literature, Science, and the Arts of this University a statement showing that they have completed the equivalent of 60 hours of credit in that College will be admitted in case their credentials show that they have covered the subjects named under I.

In order to meet the requirements in Latin the applicant should have covered Latin grammar and at least four books of Cæsar or their equivalent.

*No student therefore will be admitted to the school who has not completed two years of college work, in addition to graduating from an approved High School, or its equivalent, and no entrance conditions will be allowed.*

#### **Standard of Scholarship Required for Admission to the Medical School**

Students enrolled in the College of Literature, Science and the Arts of this University who desire to enter the Medical School must present credentials showing not only a minimum of two years of college credit, 60 hours (including the specific subjects required for admission to the school), but also furnish evidence of an average scholarship for the two years such that those applying for admission to the Medical School in September, 1925, and thereafter, shall have earned in residence at least one and one-third times as many points as hours. Applicants for admission to the Medical School in September, 1924, must have earned in residence at least one and one-sixth times as many points as hours. In addition they must not be on the "Warned" or "Probation" list during the final semester in that College.



Students coming from other institutions not employing a similar grading system will be required to furnish a recommendation from the proper authority in the school from which they come.

### **COMBINED CURRICULA IN LETTERS AND MEDICINE A.B. AND M.D.**

Students desiring to obtain the degrees of Bachelor of Arts in the College of Literature, Science, and the Arts, and of Doctor of Medicine in the Medical School, may, by enrolling in the Combined Curriculum in Letters and Medicine, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the University maintain a uniform record of good scholarship. The work is under the direction of a Committee of five members representing the College of Literature, Science and the Arts, and the Medical School. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Arts, who has been a student in the College of Literature, Science, and the Arts for at least one year and has at least 90 or more hours to his credit, of which at least 30 hours have been earned in the College of Literature, Science, and the Arts of this University, may enroll upon the combined curriculum; that is, while continuing his registration in the College he may also register in the Medical School, provided the work he has already completed includes a sufficient number of the courses enumerated below to enable him to complete within one year the specified requirements described in the following paragraphs.

All students desiring to enter upon the Combined Curriculum must, before April 20 of the year preceding the double registration, file with the Registrar of the College of Literature, Science, and the Arts, on a blank to be obtained from him, a petition to be granted that privilege.

When the student so registered in the College and School has completed the first year of the Medical curriculum and not less than 90 hours in the College of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts provided he has completed the requirements for graduation from the latter college (See page 150), and provided his work has included the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.

French and German, 16 hours of either one, and 8 hours of the other.

English, 6 hours.

Psychology, 6 hours.

Electives from Group III, 12 hours, unless excused in part by the Committee.

Physics, 8 hours, including two hours of laboratory work, and exclusive of Physics Z. Plane Trigonometry and a unit of preparatory Physics are prerequisite for this work.

Chemistry, General, Qualitative, and Organic, 12 hours for students presenting Chemistry for entrance, otherwise 16 hours.

Zoölogy, 10 hours.

Botany, 4 hours.

Total, 90 hours.

Suggested electives: Latin or Elementary Greek, 8 hours; History, or Economics, or Philosophy, 8 hours; Qualitative Analysis, 4 hours; Organic Chemistry, 5 hours.

### **B.S. (IN MED.) AND M.D.**

Students who so desire, may obtain the Degrees of Bachelor of Science in Medicine and Doctor of Medicine in six calendar years by complying with the requirements above set forth, except that they must complete the first and second years of the medical curriculum and that the credit required from the College of Literature, Science, and the Arts, instead of 90 hours, shall be 67 hours\* before they may enroll upon the Combined Curriculum and 75 hours before they receive the B.S. (in Med.) degree, and shall include the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.

French or German, 16 hours of one.

Electives from Group III, 12 hours.

Physics, 8 hours, including two hours of laboratory work. Plane Trigonometry and a unit of preparatory Physics are prerequisite for this work.

Chemistry, General, Qualitative, and Organic, 12 hours for students presenting Chemistry for entrance, otherwise 16 hours.

Zoölogy, 4 hours.

Botany, 4 hours.

Total, 75 hours.

Electives are suggested from the courses before mentioned.

Students taking the six-year course will ordinarily need to attend the College of Literature, Science, and the Arts two and one-half years, or two years and two summer sessions. Those whose scholarship is sufficiently high may apply for permission to elect a limited number of extra hours.

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\* In 1926, and thereafter, students must have completed the entire 75 hours of collegiate work before entering upon the combined curriculum leading to the degrees of Bachelor of Science in Medicine and Doctor of Medicine. They should attend the two summer sessions following their freshman and sophomore college years.

**COMBINED CURRICULUM IN PHARMACY AND MEDICINE****B.S. (In Phar.) and M.D.\***

Students desiring to obtain the degrees of Bachelor of Science (in Pharmacy) in the College of Pharmacy, and of Doctor of Medicine in the Medical School, may, by enrolling on the Combined Curriculum in Pharmacy and Medicine, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the University maintain a uniform record of good scholarship.\*\* The work is done under the direction of five members representing the college and school. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Science in Pharmacy who has been a student in the College of Pharmacy for at least one year and has 96 or more hours to his credit, of which at least 30 hours have been earned in the College of Pharmacy of this University, may enroll upon the combined curriculum; that is while continuing his registration in this college he may also register in the Medical School.

All students who desire to enter upon the Combined Curriculum in Pharmacy and Medicine must, before April 20 of the year preceding double registration, file with the Secretary of the college, upon a blank to be obtained from him, a petition to be granted that privilege.

When a student so registered in the college or school has completed the first two years of the medical curriculum and not less than 96 hours in the College of Pharmacy, he will be recommended for the degree of Bachelor of Science (in Pharmacy), provided he has completed the requirements for graduation from the latter college (see page 578) and provided his work has included the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.

French and German, 16 hours of either one. (Each unit of French or German offered in the preparatory work reduces by four hours the requirement in that language. One year of foreign language, however, must be taken in college).

Physics, 8 hours.

Chemistry, 32 or 28 hours.

Zoölogy, 4 hours.

Botany, 4 hours.

Mathematics, 2 hours.

Pharmacy, 24 hours.

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\* All students entering upon the Combined Curriculum must satisfy fully the requirements for admission to the College of Pharmacy, including two units of Latin. Otherwise an attendance upon one Summer Session will ordinarily be necessary in addition to the residence prescribed herein.

\*\* The applicant will be expected to have earned at least one and one-third times as many points as hours.

In order to meet exceptional cases, the Committee shall have power to adjust the foregoing requirements by allowing substantial equivalents.

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## **ADMISSION TO ADVANCED STANDING**

The applicant must have studied as a matriculated medical student in an approved medical school for a period of time at least equal to that already spent by the class which he seeks to enter. He must present credentials showing that he has satisfactorily completed courses equivalent in amount and character to those given in this school, in the year or years preceding that to which he seeks admission and must pass examinations at the beginning of the session in all the subjects that have already been pursued by the class which he desires to enter. Certificates of standing should be presented, but these cannot be accepted in place of these examinations.

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## **COURSES OF INSTRUCTION**

The regular curriculum covers four years of nine months each. The first two years are devoted to the more fundamental scientific courses which serve as a basis for the technical and clinical studies which follow. Nearly the entire time of the first year is devoted to laboratory work. The forenoons of the remaining three years are devoted mainly to lectures and recitations two or three each day; the afternoons to laboratory work, to clinical demonstration courses, and to clinics.

The following brief descriptions show the character and extent of the instruction given in the several branches during the current year, and indicate the order in which the different portions of the course are studied. Further details are given in the Special Announcement of the School.

### **ADMINISTRATIVE MEDICINE**

Special courses in Hospital Administration for graduates in Medicine are offered by Professor PARNALL.

### **ANATOMY**

First semester daily, afternoons, 1:00 to 5:00. Three recitations weekly. *Eight hours.* May be elected only by permission. Professors McCOTTER and GUILD, instructors, and assistants. This course in gross anatomy includes discussion of the entire body.

2. Embryology, Histogenesis, General Histology, Organology, and Anatomy of the Special Sense Organs and Nervous System. Lectures, recitations, and laboratory work. First semester. Daily, 8 to 12, Saturday included. May be elected only by permission. *Ten hours.* Professor HUBER, Dr. THOMPSON and Dr. CROSBY and assistants.
- 2a. General Embryology, General Histology, and Histogenesis, and the Structure of the Elementary Tissues. *Five weeks.*
- 2b. Organology, including the development of the organs. *Five weeks.*
- 2c. Gross and Microscopic Anatomy of the Central Nervous System and Special Sense Organs. *Six weeks.*
3. Lectures, Recitations, and Laboratory Work in Human Anatomy for Dental Students. Second semester. Daily, 1 to 5. *Six hours.* Professor McCOTTER, and assistants.
4. Lectures, Recitations, and Laboratory Work in Embryology and Histology for Dental Students. Second semester. Daily, 8 to 12. *Eight hours.* Professor HUBER, Dr. THOMPSON and Dr. CROSBY, and assistants.
5. Correlation of development and microscopic anatomy with gross anatomy and topographic anatomy based on frozen sections. Lectures, recitations, and laboratory work. Second semester. Daily, 8 to 10. Open to students who have completed Anatomy 1 and 3. Professors HUBER, McCOTTER, and GUILD, with assistants. *Five hours.*
6. Mammalian and Human Embryology. Second semester. Open to students who have completed Anatomy 3. Hours arranged. *Three or five hours.* Professor HUBER.
7. Advanced Course in Mammalian Embryology, Histogenesis, and Histology. Professor HUBER. Hours to be arranged.
8. Histology and Embryological Technique. Professor HUBER, and assistants. *Three hours.*
9. Anatomy of Special Regions. Open to graduates in Medicine and undergraduates who have completed Course 1. Hours to be arranged with the Instructor in charge. Professor McCOTTER.
10. Comparative Vertebrate Neurology. Professor McCOTTER.
11. Advanced Course in the Development and Microscopic Anatomy of the Central and Peripheral Nervous System, Human and Comparative. Professor HUBER.

12. Research in Vertebrate Histology, Embryology, Anatomy of the Nervous System, Gross Anatomy, Human and Comparative. Professors HUBER and McCOTTER.

SUMMER SESSION OF 1924

15. Laboratory Work in Human Anatomy. Eight weeks. Daily, 8:00 to 12:00 and 1:00 to 4:00. Professor McCOTTER, and Assistant Professor GUILD.
25. Histology, Embryology, and Anatomy of the Nervous System. Lectures, recitations, and laboratory work. Daily 8:00 to 12:00 and 1:00 to 4:00. Professor HUBER, Dr. THOMPSON and Dr. CROSBY.
- 2a. Lectures and Laboratory work in Histology and Embryology.
- 2b. Lectures and Laboratory work in Anatomy of the Nervous System and Special Senses.
- 2c. Mammalian and Human Embryology. Professor HUBER, and assistants.
35. Dissection, for Candidates for the Degree of Doctor of Dental Surgery.
45. Embryology and Histology. Professor HUBER, Dr. THOMPSON, and Dr. CROSBY.
55. Regional and Topographic Anatomy. Professor McCOTTER, and Assistant Professor GUILD.

**BACTERIOLOGY**

2. General Bacteriology. Lectures and quizzes. Daily, second semester, first year. *Five hours.* Professor NOVY.
3. Practical Bacteriology. Laboratory work and recitations. Daily, second semester, first year. Professor NOVY and Assistant Professor HADLEY.

This course is open only to students of this School.

- 3a. Practical Bacteriology. The same as Course 3, but open to students other than those eligible to Course 3. Daily, first semester, beginning the last week in November. *Four hours.* Professor NOVY and Assistant Professor HADLEY.
- 3d. Practical Bacteriology. For Dental students only. Eight weeks, 1 to 6, beginning the first week in October. Assistant Professor HADLEY.

- 3c. Practical Bacteriology. *M, W, F, 1-6*, during the second half of the first semester. Open only to students of Sanitary Engineering. *Two hours*. Assistant Professor EMERSON.
- VII-4. Bacteriology. Lectures, first semester. *Three hours*. Assistant Professor EMERSON. This lecture course is intended for students in the School of Education.
4. Advanced Bacteriology. Professor NOVY and Assistant Professor EMERSON.  
Course 4 must be preceded by Course 3 or 3a. It is an optional course, and is open only to a limited number of students.
- 4a. Serum Reactions and the Pathogenic Protozoa. Continuation of Course 4. Professor NOVY and Assistant Professor EMERSON.
5. Water Analysis. Chemical, microscopical, and bacteriological study of drinking water. Assistant Professor EMERSON.
- 5E. Water Analysis. Two afternoons weekly during the first half of the semester. Open only to students of Sanitary Engineering. *Two hours*. Assistant Professor EMERSON.
6. Food Analysis. Chemical and bacteriological examinations of food. Assistant Professor EMERSON and Mr. COLLINS.  
Course 6 is open only to students specially qualified for the work.
7. Research Work. Hygienic Problems. *Hours to be arranged*. Professors NOVY and SUNDWALL.
10. Research in Protozoology. Professor NOVY and Assistant Professor HADLEY.
11. Research in Bacteriology. Professor NOVY.

## SUMMER SESSION OF 1924

- 3c. Laboratory Work in Bacteriology. Professor NOVY and assistants.
- 4c. Vaccines and Serum Reactions. Assistant Professor HADLEY.

## DERMATOLOGY AND SYPHILOLOGY

1. Recitations, Clinic, and Lantern Slide Demonstration. One hour a week, second semester. Third year. Professor WILE.
2. Histopathology of the more common cutaneous disorders. Sixteen hours in the second semester. Dr. KEIM.
3. Clinical Lectures and Conferences, one and one-half hours a week. Fourth year. Professor WILE.
4. Dermatology and Syphilology. Section work. Professor WILE, and Dr. KEIM.

**GYNECOLOGY**

(See under Obstetrics.)

**HOMOEOPATHIC MEDICINE**

The courses in Homoeopathic Medicine are given in the South Division of the University Hospital. Adequate laboratory facilities make it a complete hospital unit and the student is kept in constant touch with the patient. The relation between exact diagnosis and therapeutic application is constantly stressed.

**Homoeopathic Practice**

1. Homoeopathic Theory and Practice. Lectures three hours a week. First semester. Third year. Assistant Professor BOYD.
14. Homoeopathic Theory and Practice. Lectures four hours a week. Second semester. Third year. Assistant Professor BOYD.
2. Homoeopathic Theory and Practice. Ward work four hours daily for eight weeks fourth year. Assistant Professor BOYD.
3. Homoeopathic Medical Clinic. Five hours per week throughout the year. Fourth year. Professor BEEBE and Assistant Professor BOYD.

**Homoeopathic Materia Medica**

1. Homoeopathic Materia Medica. Laboratory. Four hours daily for eight weeks. Second semester. Second year. Professor RUNNELLS and Assistant Professor NAST.
2. Homoeopathic Materia Medica. Lectures. Four hours a week. First semester. Third year. Professor RUNNELLS and Assistant Professor NAST.
24. Homoeopathic Materia Medica. Lectures. Two hours a week. Second semester. Third year. Professor RUNNELLS and Assistant Professor NAST.
3. Homoeopathic Materia Medica Conference. One hour per week throughout the year. Fourth year. Professor RUNNELLS and Assistant Professor NAST.

**SUMMER SESSION OF 1924**

15. Laboratory. Assistant Professor NAST.
25. Lectures and Quizz. Professor REYNOLDS.



**HYGIENE AND PUBLIC HEALTH**

2. General Hygiene and Public Health. Lecture demonstrations, and recitations. Four times a week, second semester. Required of sophomore medical students. This course will include in general the subjects outlined in General Hygiene 1, with their particular relations to the physician. Professors SUNDWALL and FORSYTHE.
3. General Hygiene and Public Health. Lectures, demonstrations, and recitations. Two times a week, first semester. Required of junior medical students. This course includes the essentials of applied hygiene and public health, communicable diseases, epidemiology, control of epidemics, the relations of the physician to public health agencies and activities. Professor SUNDWALL.
4. Research Work on Hygiene Problems. Professors NOVY and SUNDWALL.  
Course 4 is open only to students specially qualified for the work.

**SUMMER SESSION OF 1924**

95. School Hygiene. *Two hours credit.* Professor SUNDWALL.
115. General Health and Public Health. *Two hours credit.* Professor SUNDWALL.
105. Child Hygiene. *Two hours credit.* Professor BARTLETT.
1. Theoretical Work in Public Health Nursing. Professor BARTLETT, and others.

**INTERNAL MEDICINE****SECOND YEAR**

1. Physical Diagnosis. Second semester. Four times a week. Class divided into sections. Dr. GREENE, Dr. MARSH, Dr. HERMANN, Dr. STERN, Dr. YOUMANS, Dr. ALTER, Dr. HILLS, and Dr. MUELLER.
2. Clinical Microscopy. Class divided into four sections, each section eight weeks. Six hours a week. Dr. HERMANN, Dr. STERN, Dr. ALTER, and Dr. MUELLER.

**THIRD YEAR**

3. Medical Clinics. Three hours a week. Professors WARFIELD, NEWBURGH, and WILSON, Dr. GREENE, Dr. MARSH, and Dr. STERN.

4. Physical Diagnosis. Afternoons for eight weeks. The class is divided into four sections. Dr. GREENE, Dr. STERN, Dr. HERMANN, Dr. YOUMANS, Dr. ALTER, Dr. HILLS, and Dr. MUELLER.

FOURTH YEAR

5. Ward Work. Mornings for eight weeks. Class divided into four sections. Professors WARFIELD, NEWBURGH, WILSON, Dr. MARSH, Dr. HERMANN, and Dr. STERN, Dr. YOUMANN, and Dr. ALTER.
6. Senior Clinic. One hour a week throughout the year. Professor WARFIELD.
7. Clinical Pathological Conference. Two hours a week throughout the year. Professors WARTHIN, CABOT, and WARFIELD.

*Graduate Work.*

8. Clinical Medicine. A limited number of physicians may be admitted to the clinics, wards, and laboratory classes. Physicians who have had adequate training will be received as voluntary assistants and the facilities of the clinics open to them for the study of definite problems.

SUMMER SESSION OF 1924

- 2s. Clinical Microscopy. Three hours daily. Dr. HERRMAN and Dr. STERN.
- 4s. Physical Diagnosis. Four hours daily. Dr. GREENE and Dr. HILLS.
- 5s. Clinical Medicine. Four hours daily. Dr. YOUMANS and Dr. MARSH.

**Materia Medica**

(See Pharmacology.)

**MEDICAL JURISPRUDENCE AND TOXICOLOGY**

1. Lectures from the legal standpoint. Second semester fourth year. Mr. LIGHTNER.
2. Lectures from the medical standpoint. Second semester fourth year. Assistant Professor EMERSON.

**NEUROLOGY**

1. Lecture and Recitation Course. Three hours each week throughout the second semester, third year. Professor CAMP.
2. Clinical Lecture. Two hours each week throughout the fourth year. Professor CAMP and Dr. HARRYMAN.
3. Ward Class. Two hours daily, fourth year. Professor CAMP.

**OBSTETRICS AND GYNECOLOGY**

1. Theory of Obstetrics. Lectures, recitations, clinical conferences. Three times a week, first and second semesters, third year. Professor PETERSON, and assistants.
2. Demonstration Course in Obstetrics. Ten hours a week for eight weeks, third year. Dr. RUMPF and Dr. McCAFFREY.
3. Gynecology. Lectures, recitations, and demonstration of cases. One hour a week, third year. Professor PETERSON.
4. Obstetric and Gynecologic Clinic. One and one-half hours a week, fourth year. Professor PETERSON and assistants.
5. Practical Obstetrics. Small sections. Fourth year. Dr. RUMPF and Dr. McCAFFREY.
6. Obstetrics and Gynecology. Diagnostic Clinic and Ward Class. Three hours a day for eight weeks. Professor PETERSON, Dr. MILLER, and assistants.

**SUMMER SESSION OF 1924**

- 2s. Demonstration Course in Obstetrics. 8 to 11 daily. Maternity Hospital. Dr. RUMPF and Dr. McCAFFREY.
- 4s. Practical Course in Obstetrics and Gynecology. 8 to 11 daily. Maternity Hospital and women's surgical ward. For seniors. Professor PETERSON and Dr. DANIELS.

**OPHTHALMOLOGY**

1. Lectures and Recitations. Fourth year. Professor PARKER.
- 2a. Clinical Lectures. Fourth year. Professor PARKER.
- 2b. Clinical Demonstration and Refraction. Assistant Professor SLOCUM.
3. Demonstration Course. Twice a week, for eight weeks, third year. Assistant Professor SLOCUM.

**OTO-LARYNGOLOGY**

1. Lectures and Recitations. Fourth year. Professor CANFIELD.
2. Clinical Course. Fourth year. Professor CANFIELD and Assistant Professor FURSTENBERG.
3. Demonstration Course. Twice a week, for eight weeks, third year. Dr. HITCHKISS.

**PATHOLOGY**

1. General Pathology. Three times a week, first semester; three times a week, second semester, second year. Professor WARTHIN.
  2. General Pathology. Laboratory work. Afternoons and Saturday mornings for nine weeks, second semester, second year. Professor WELLER, Mr. SIMPSON, and Dr. WANSTROM.
  3. Special and Gross Pathology. Gross pathological anatomy. One hour a week, third year, in addition to time taken for clinical autopsies. Professor WARTHIN.
  - 3a. Clinical Pathological Conference. Two hours weekly, throughout the year. Professors WARTHIN, WELLER, CABOT, WARFIELD, and HICKEY, Assistant Professors PECK and COLLIER, and other members of the clinical staff.
  4. Autopsies. Professors WARTHIN and WELLER.
  5. Pathological Technique. Elective. *Four hours credit.* Professors WARTHIN and WELLER.
  6. Pathological Physiology. *Six hours credit.* Professors WARTHIN and WELLER.
  7. Special Graduate Course. Research. Professors WARTHIN and WELLER.
  8. General Pathology for Dental Students. Five times a week, first semester, junior year. Professors WARTHIN and WELLER, and Mr. SIMPSON.
  9. Laboratory Course in General Pathology for Dental Students. Afternoons for nine weeks, first semester, junior year. Professor WELLER, Mr. SIMPSON, and Dr. WANSTROM.
  10. Pathology of the Female Genito-Urinary Organs. Elective and Graduate Course. *Four hours credit.* Professors WARTHIN and WELLER.
  11. Pathology of the Infectious Diseases. Elective and Graduate Course. *Four to six hours credit.* Professors WARTHIN and WELLER.
  12. Pathology of Neoplasms. Elective and Graduate Course. *Four to six hours credit.* Professors WARTHIN and WELLER.
- SUMMER SESSION OF 1924
25. Laboratory Course in Pathology. Daily 8 to 12 and from 1 to 3. *Six hours credit.* Professors WARTHIN and WELLER and Mr. SIMPSON.

55. Pathological Technique. Daily 1 to 4 P. M. *Four hours graduate credit.* Professors WARTHIN and WELLER.
75. Elective Course in Special Pathology. Professors WARTHIN and WELLER.
105. Pathology of the Female Genito-Urinary Organs. Daily 1 to 4 P. M. *Four hours graduate credit.* Professors WARTHIN and WELLER.
115. Pathology of the Infectious Diseases. *Four to six hours credit.* Professors WARTHIN and WELLER.
125. Pathology of Neoplasms. *Four hours credit.* Professors WARTHIN and WELLER.

### PEDIATRICS AND INFECTIOUS DISEASES

1. Lectures, demonstrations, bedside instruction, and recitations on the Specific Infectious Diseases. Once a week, first semester, third year. Professor COWIE and instructor.
2. Lectures, demonstrations, presentation of illustrative cases, and recitations on Infantile Nutrition and Infant Feeding. Twice a week during the second semester until the course is completed. Third year. Professor COWIE.
3. Lectures, demonstrations, presentation of illustrative cases, and recitations on the common medical diseases of infancy and childhood. Comparison of adult and juvenile types of medical disease. Two hours a week, second semester. This course follows Course 2 at the same hours.
4. General Clinic in Pediatrics. Once a week, fourth year. Professor COWIE.
5. Ward Work. Practical Work in Pediatrics and Infectious Diseases. Seven hours per week. Professor COWIE, Dr. PARSONS, and Dr. O'DONNELL.
6. Post Graduate. Advanced clinical work is given in clinical chemistry, metabolism, infection, and immunity, particularly as related to the medical diseases of infancy and childhood and infectious diseases from the viewpoint of research.

### PHARMACOLOGY AND THERAPEUTICS

1. Pharmacology. Lectures and recitations. Three times a week, second semester, second year. Professor EDMUNDS.
2. Pharmacology. Lectures and recitations. Four times a week, first semester, third year. Professor EDMUNDS.

3. Experimental Pharmacology. Second semester, second year. Professor EDMUNDS, Assistant Professor NELSON, Mr. McLAUGHLIN, and assistants.
4. Research Work in Pharmacology. Professor EDMUNDS.
5. Practical Anæsthesia. Fourth year. Miss DAVIS.
6. Pharmacology. Lectures and recitations. For students engaged in the study of Pharmacy. Four times a week. Second semester. Assistant Professor NELSON.

SUMMER SESSION OF 1924

35. Experimental Pharmacology. Assistant Professor NELSON, Mr. McLAUGHLIN, and assistants.

**PHYSIOLOGICAL CHEMISTRY**

1. Physiological Chemistry. Lectures three hours a week during first semester of the second year. *Three hours.* Professor LEWIS.
2. Physiological Chemistry Laboratory. 1 to 4 daily for eight weeks. Two periods first semester. *Three hours.* Professor LEWIS.
3. Advanced Physiological Chemistry. Lectures and Laboratory. *Two hours.* Second semester. Professor LEWIS.
4. Advanced Physiological Chemistry. Seminar. *Two hours* throughout the year. Professor LEWIS.
5. Advanced Physiological Chemistry. Research. Professor LEWIS.

SUMMER SESSION OF 1924

15. Physiological Chemistry Lectures. 7 A. M. daily. Professor LEWIS.
25. Physiological Chemistry Laboratory. 8 to 12 daily. Professor LEWIS and Dr. CHRISTMAN.
55. Advanced Physiological Chemistry. Hours to be arranged. Professor LEWIS.

**PHYSIOLOGY**

3. Human Physiology. Lectures, demonstrations, and conferences. First semester, second year. Professor GESELL.
4. Human Physiology. Lectures, demonstrations, and conferences. Second semester, first year. A continuation of Course 3. Professor GESELL.

5. Human Physiology. Laboratory and laboratory conferences. 1 to 4 for eight weeks. Professor GESELL, Assistant Professor COPE, and assistants.
6. Demonstrations. Throughout the year. Professor GESELL and assistants.
7. Special Problems. Hours and credit to be arranged. Professor GESELL.
8. Research. Hours and credit to be arranged. Professor GESELL.

#### SUMMER SESSION OF 1924

25. General and Mammalian Physiology. *Two hours credit.* Professor GESELL and assistants.
55. Human Physiology. Laboratory and laboratory conferences. Professor GESELL and assistants.
75. Special Problems. Hours and credit to be arranged. Professor GESELL.
85. Research. Hours and credit to be arranged. Professor GESELL.

#### PSYCHIATRY

1. Psycho-pathology. Didactic and clinical lectures for one and one-half hours each week for one semester for third-year students. Professor BARRETT.
12. For third-year students. Fifteen exercises of two hours each. Laboratory work in the pathological anatomy and physiology of the nervous system. Professor BARRETT.
2. Clinical Psychiatry. Clinical lectures for one and one-half hours each week for one semester for fourth-year students. Professor BARRETT.
3. Ward Class in Psychiatry. Professor BARRETT and Dr. MASON.
4. Laboratory Work in Neural Pathology. Special election. Professor BARRETT.
5. Laboratory Work in Experimental Psychology. Professors BARRETT and PILLSBURY.

#### ROENTGENOLOGY

1. Radiology and Radiotherapy. Lectures and demonstrations once a week during both semesters, to the fourth-year students. Professor HICKEY.

**SUMMER SESSION OF 1924**

1. Course for X-Ray Technicians. Professor HICKEY.
2. Elective. Demonstrations and laboratory work in elementary X-ray technique. This course is given to a limited section of students. Class meets three times a week for a period of eight weeks. Dr. MERRILL.
3. Elective. Demonstration of plates with practice in plate reading. This course is given to a limited of students. The class meets twice a week for a period of eight weeks. Professor HICKEY.
4. Elective. Elementary demonstrations in radiotherapy. This course is given to a limited number of students. Class meets once a week for a period of eight weeks. Dr. HASLEY.

**SURGERY****Third Year**

Clinical lectures and section teaching.

**FIRST SEMESTER**

1. Five hours each week during the first semester are devoted to clinical lectures. These attempt to cover in a systematic way the principles of survey and are illustrated with clinical cases, pathological specimens, and lantern slides.
2. Out-patient clinic surgery. Four sections, three hours a day for eight weeks. In this course the sections under the direction of an Assistant Professor and an Instructor see the out-patient cases, are required to take a history and make a partial physical examination. It is intended to supplement the lecture course and particularly to lay stress upon minor surgery and surgical diagnosis.

**SECOND SEMESTER**

3. Six hours each week are devoted to clinical lectures as during the first half of year.
4. Section teaching continues as during the first semester.

**Fourth Year**

The section method of teaching has been adopted for the senior year, the class being divided into four sections, each section receiving instruction in Surgery for a period of nine weeks, as follows:

5. One hour a week clinical lecture by Professor or Assistant Professor, chiefly devoted to the principles of Genito-urinary, Orthopedic, and Industrial Surgery.



6. Two hours a week are devoted to joint clinics held by the Professor of Surgery and the Professor of Medicine with their Associates. At this exercise the more difficult border-land cases of Medicine and Surgery are introduced and discussed before the class. In those cases in which operation is advised and done the findings are reported at the next exercise. The purpose of this exercise is to demonstrate the essential unity of Medical and Surgical diagnosis and counteract the tendency to separate the two departments.

7. Section teaching. Sections are assigned for a period of nine weeks each. During this time the students spend their entire morning at the hospital in the Department of Surgery. All the cases are assigned to them at admission and they are expected to take a complete history, make a physical examination with the exception of complicated procedures requiring instruments, and do all the ordinary clinical laboratory work. Results of special examinations such as X-Ray and cystoscopy are supplied to them. For this work they are allowed an hour and a half, or from 8 to 9:30 daily. From 9:30 to 11:30 they are taken either to demonstration rooms or wards by the Professor or one of the Assistant Professors in rotation and two hours are spent in discussing cases which the students have been examining and also the details of after treatment.

8. Operative surgery on the cadaver and upon animals. For two weeks in each section the entire morning is devoted to operative surgery upon the cadaver and upon animals. In all work on animals the operations are done under full surgical anæsthesia and represent as nearly as possible the setting of hospital surgery. The operations are performed by the students themselves who assist each other. The work is under the supervision of an Assistant Professor and an Instructor.

#### SUMMER SESSION OF 1924

25. Demonstration Course. Daily 8 to 12. Dr. EBERBACH, Dr. DEWEY, and Dr. CURTIS.

### **BEDSIDE DISPENSARY INSTRUCTION**

Senior students are given charge of patients, and are required to make diagnosis, prescribe, dress wounds, and perform minor operations under the direction of the professor in charge. A lying-in ward furnishes obstetrical cases, which are attended by the senior students in rotation.

## RULES CONCERNING EXAMINATIONS

1. *Honor System.*—For a number of years all the examinations in this School have been under student control. Under this "Honor System" the faculty turns over to the students the complete supervision of all examinations. Each class elects an Honor Committee which has charge of this matter and which is responsible to the faculty. In case there is any infraction of rules, this committee tries the offender, and if necessary make recommendations to the faculty for official action.

2. Examinations (either written or oral, or both) will be held at the close of each course or semester. The result of each examination must be reported in writing and within ten days to the Secretary of the Faculty by the professor in charge.

3. A student may be marked A, excellent; B, good; C, fair; D, conditioned; or E, not passed. A student may also be reported Incomplete, in which case he may apply for examination or re-examination in the same subject at the close of the next course or semester or at a time set by the professor in charge, provided he has completed the work of the course. A student reported D (conditioned) can apply for re-examination in the same subject at the close of the next course or semester, or at the next officially announced time for the removal of conditions. Examinations for the removal of conditions are held during the first week of the session and immediately after spring vacation. A student reported as Absent may, at the discretion of the professor in charge, be given a special examination or comply with the rule governing the removal of conditions. A student reported E, "not passed," cannot apply for re-examination until he has again taken the course in which he has failed.

4. All "Incompletes" and "Conditions" not passed within one year become "Not Passed."

5. Candidates for graduation failing in an examination will be allowed a re-examination before the entire Faculty, and, failing in this, such students may again present themselves for examination at the expiration of a time which shall be determined by the Faculty, but which shall not be less than three months, nor longer than twelve months.

6. No student shall be recommended for graduation until all his required work is completed and all his examinations passed.

7. *Promotion.* — The Faculty has appointed a Committee on Promotion whose duty it is to take under consideration the cases of all students whose work has not been maintained at the proper standard. After necessary investigation has been made as to the cause of failure, this committee makes recommendations to the Faculty for official action.

## INSTRUCTION FOR WOMEN

The course of instruction for women is in all respects the same as for men. It has been found in this and other of the better medical schools that both sexes may attend with propriety and at the same time the various laboratory courses, the lecture courses, as also the sectional and public clinics.

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## REQUIREMENTS FOR GRADUATION

To be admitted to the degree of Doctor of Medicine, a student must be twenty-one years of age, and possess a good moral character. He must have completed the required courses in laboratory work and have passed satisfactory examinations on all the required studies included in the full course of instruction. He must have pursued the study of medicine for a period of four years and have attended four full courses of medical lectures, the last of which must have been in this School.

Graduates of other reputable medical schools, wishing to take a degree in this School, must regularly matriculate and do all the work required in this School and not required in the school that has granted the diploma already held. The shortest term of residence for such graduates is one year. Graduates of other reputable medical schools may, however, without becoming candidates for a degree, pursue any of the graduate courses on the conditions stated below.

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## GRADUATE COURSES

The rapid development of medical science has necessitated the introduction of many new subjects into the curriculum, and this leads practitioners who wish to keep abreast of the times to return to the University in order to take special courses in the newer subjects. On account of the frequency of these requests, the Board of Regents has authorized the faculty to admit medical graduates and others who are properly qualified provided they elect no more than five hours in any semester and pay an annual fee of \$25. If such students are entering the University for the first time they must also pay the usual matriculation fee. It is also understood that the part-time fee of \$25 covers only the usual privileges of study and tuition. Michigan Union and Women's League membership, athletics, and health service are not included.

## **MUSEUMS AND LABORATORIES**

For further information in regard to the University museums, laboratories, libraries, and gymnasiums, see page 69.

### **ANATOMICAL COLLECTION**

The museums of the late Professors FORD and SAGER, including several thousand specimens, the result of many years labor in collecting and preparing material intended to aid directly in teaching, are now the property of the University. Other preparations are constantly being added, and the museum now contains a valuable collection of bones, illustrating abnormal as well as normal conditions and the various changes that occur from infancy to old age; dissections, general and partial, of the vascular, nervous, and muscular systems; series of sections made of frozen bodies; preparations illustrative of visceral and other anomalies; models of various organs and portions of the body in wax, papier-maché, and plaster, and preparations and models illustrating the phenomena of human and comparative embryology and neurology.

The collection contained in the University Museum and the valuable osteological and odontological collections in the museum of the College of Dental Surgery are also open to the inspection of students.

### **MUSEUM OF PATHOLOGY**

The laboratory of pathology contains a very complete and well-arranged pathological museum with many rare and valuable specimens, utilized for teaching purposes.

### **MUSEUM OF MATERIA MEDICA**

The museum of materia medica consists of a fairly complete collection of the crude substances used in medicine, along with their principal preparations and active principles. In the arrangement of the drugs into groups convenient for study, importance is attached not to their origin but to their action. The museum is also provided with several works of reference for use of students, and with a number of graphic registrations of the action of drugs. It is open to students of the junior class at such hours as they arrange with the instructor.

### **MUSEUM OF NATURAL HISTORY AND LIBRARY**

Students in medicine have access to the botanical, zoölogical and geological cabinets of the University, estimated to contain 255,000 specimens. The Medical Library contains 50,000 volumes and 500 pamphlets, and is housed in the General Library. A complete catalogue, arranged both by authors and by subjects, is accessible to

readers. The leading medical periodicals of this country and of Europe, 400 in number, are taken and kept on file. For information concerning the General Library and the special libraries in chemistry and biology, see page 69.

### **ANATOMICAL LABORATORIES**

The laboratory of anatomy is situated on the third floor of the Medical building and contains six well lighted and well ventilated rooms. Study room is provided for the convenience of the students, also rooms for research and for special dissections, both comparative and human.

The laboratory possesses an osteological loan collection, and students are permitted to withdraw sets of bones illustrative of human osteology, which they may retain during their stay in the anatomical laboratory.

The histological laboratory is on the second floor of the Medical building. It provides facilities for elementary and for advanced work in histology and histogenesis. There is a large general laboratory for the elementary work in histology, and smaller rooms for the elementary and advanced work in histology and vertebrate embryology, together with storage rooms, a room in which a reference library is shelved, and private rooms for the use of the professor in charge and his staff. Suitable provision is made for students and graduates who desire to engage in the work of research. The laboratory equipment includes the apparatus and instruments needed for conducting the elementary work in histology and embryology, and for special research. An excellent collection of the Ziegler embryological models and of models of various glands and other minute atomic structures made after the Born method of wax plate reconstruction and of corrosion preparations facilitates the work of instruction in the courses of histology and embryology. Every encouragement is given students and other persons of sufficient preliminary training to undertake the investigation of special problems.

### **HOMOEOPATHIC MATERIA MEDICA LABORATORY**

The laboratory for Homoeopathic Materia Medica is located on the ground floor of the south division of the University Hospital. The laboratory is provided with apparatus and material to accommodate fifteen students. Ample provision has been made with rooms, material, and apparatus for special research.

### **PHYSIOLOGICAL LABORATORY**

The apartments provided for the physiological laboratory offer excellent facilities for practical work, whether of class instruction or of original investigation. Large and well-lighted rooms are appropriated for the use of undergraduate students, who perform under the direction of instructors most of the fundamental physiological

experiments. The subjects commonly embraced in the practical course relate to the physiology of muscle and nerve, reflex action, circulation, respiration, and digestion. Smaller rooms are devoted to advanced work and original investigation. The laboratory has a good supply of apparatus, tools, etc., and is open daily for physiological experiment and research.

### **PHARMACOLOGICAL LABORATORY**

The pharmacological laboratory is well supplied with apparatus and material for original work in this branch of research, and any student or graduate receives every encouragement in the prosecution of such work.

### **PATHOLOGICAL LABORATORY**

The first floor on the east side of the Medical building and rooms in the basement are occupied by the pathological laboratory. Increased facilities are now afforded for graduate work and for work in research. A special room is also assigned to work in gynecological pathology.

The laboratory is supplied with microscopes, microtomes, paraffin ovens, and other apparatus necessary in the study of pathologic histology. Each student is furnished with a locker containing a microscope with high and low powers and is assigned to a table containing the necessary stains and reagents for practical work. These are furnished by the laboratory.

The supply of material for the study of pathologic histology is the result of collections made in the pathological institutes of Vienna and Dresden, and embraces almost every known pathologic condition. This collection gives ample material for the regular courses, and, in addition, offers special opportunities to the advanced student who may wish to pursue studies in certain lines of special pathology, as the pathology of the nervous system, genito-urinary tract, skin, etc. In addition, an abundant supply of fresh material comes from the clinics of the University Hospital, and this is utilized to the fullest extent in the teaching both of gross and of microscopic pathology. The laboratory is fitted with a Bausch and Lomb carbonic acid freezing microtome for use in the making of quick diagnosis and in the preparation of fresh material for class study.

### **HYGIENIC LABORATORY**

The hygienic laboratory, established by a special appropriation of the legislature in 1887, and opened for work January, 1889, is located in commodious quarters in the Medical building. The facilities for original research have been enlarged, and from twenty to thirty students in research can be accommodated at once. Special rooms have been fitted up for the chemical, microscopical, and bacteriological study of foods and drinks, and for the prosecution of investigations in the chemistry and action of bacterial and other toxins.

### **PASTEUR INSTITUTE**

The Pasteur Institute was established as a department of the hygienic laboratory in April, 1903. During the year 1903 to 1920, inclusive, 1,594 cases of hydrophobia were treated in this institute. Residents of Michigan are treated at a charge of \$25.00 and they must provide their own room and board. Persons from other states are charged one hundred dollars for the course of treatment. The institute gives opportunity for all medical students to become practically familiar with the procedure necessary in the treatment of rabies.

### **BACTERIOLOGICAL LABORATORY**

The west half of the second floor of the Medical building, containing about 7,000 square feet of floor space, is devoted to work in bacteriology. The two main laboratories contain seventy-eight desks, used by beginners and by advanced students. All the material required for the work is supplied, practically at cost, from a well-stocked dispensing room. Four rooms are devoted to the research work of the professor in charge, his assistants, and others qualified to carry on special studies. An incubating room, maintained at a constant temperature, is provided with individual drawers for the use of students. A similar room is reserved for the work in research. A cold room, including a spacious refrigerator, is cooled by means of a liquid carbonic acid plant in such a way that the refrigeration can be kept at, or below, the freezing point, while the temperature of the room itself is maintained at about 60° F. A special compartment of 1,000 cubic feet capacity is reserved for experimental disinfection. Provision is made for operative work on animals, cremation of infected material, sterilization of cages, etc. The well-lighted ground floor contains the store rooms and animal rooms, and, in addition, a large room for microphotography. Gas, water, steam, and compressed air are supplied to the hoods in every work room. The laboratory is equipped with apparatus and instruments of the best make.

### **LABORATORY OF PHYSIOLOGICAL CHEMISTRY**

This laboratory is in the west half of the third floor of the Medical building, and occupies about the same floor space as the bacteriological laboratory above described. The two rooms for the elementary and the advanced work are provided with sixty desks. An adjoining room is occupied with balances and microscopes. A preparation room contains, among other things, a distilling plant from which the water is taken in pipes to different parts of the building. Special rooms are provided for the instructor and for research. These are also well-equipped rooms for combustions, for optical work, and for gas analysis. In every room there are spacious hoods with fittings for steam and compressed air in addition to gas and water. By an elaborate system of fan ventilation, the air in the laboratory is renewed every fifteen minutes. A small lecture room is in direct connection with the laboratory.

## THE UNIVERSITY HOSPITAL

The University Hospital has the great advantage of being a hospital instituted primarily for teaching purposes, as all who are admitted are utilized freely for instruction. There are few hospitals where this is carried so far, the only restriction being the possibility of doing the patient harm. It may be well to emphasize this fact, as it has formed a distinct feature of this hospital since its beginning, in 1869, when a large dwelling house, situated on the campus, was converted into a hospital, giving accommodation to about twenty patients; and in its further growth this feature has been maintained and developed. The hospital group now embraces a central building, one office building, western building or pavilion, a large addition known as the "Palmer Ward," a psychopathic hospital, a contagious disease hospital, an eye and ear ward, a maternity hospital, a south division containing the Homœopathic wards, an internes' home, and a central heating plant. The new hospital of 600 beds nearly completed will add largely to the facilities of this group. The hospital now has 550 beds and contains two clinic amphitheatres, clinical laboratories, and a room for X-ray diagnostic work and X-ray therapy. The whole hospital is under the supervision of the Faculty and under the immediate direction of the hospital committee. The clinical teachers attend regularly upon the patients (each upon such cases as come regularly within his special department), and give the clinical instruction. Clinics are held every day during the college year and during the summer session for medical, surgical, gynecological, ophthalmological, and venereal cases, at which time examinations are made, prescriptions given, and surgical operations performed in the presence of the classes or of sections thereof.

The patients are assigned to students who take the histories of the cases, make the physical examinations, the diagnosis and prognosis, and suggest the line of treatment or operative procedure thought necessary, this under the direction of the professor in charge. The clinical laboratories under the direction of the departments of internal medicine, surgery, gynecology, and nervous diseases, all of which are especially equipped, furnish facilities for the scientific study of cases and are freely used by students as time and space permit. Stress is laid upon the value of ward and bedside instruction. The character of the hospital is such that this mode of instruction can be carried out more fully and more systematically than in many hospitals available for teaching purposes; this justifies the statement that the practical hospital work the students of this school are able to do is not yet given in many medical schools. Without detracting in any manner from the benefit which the patient may receive, it may be stated that much of the work of giving treatment, of dressing wounds, and of giving other detailed attention to patients is carried out, under proper supervision, by senior students. For the treatment of diseases of the nervous system, the hospital is furnished with apparatus for



generating all kinds of electric currents. In the lying-in ward the senior students are given an opportunity to attend cases of labor and become familiar with the duties of the lying-in room, under the immediate direction of the professor of obstetrics and his assistants. A large number of the cases submitted to the hospital are from a distance, and are of more than common interest, including numerous surgical and gynecological cases requiring major operations, many cases of disease of the lungs, heart, blood, digestive system, kidneys, and the nervous system. The eye, ear, nose, and throat service is large and replete with instructive cases. Patients with contagious diseases are treated in the isolation hospital. The expenses to patients are only for their board, for unusual appliances or for special nursing, and for medicines, the services of the clinical teachers of the Faculty being rendered gratuitously.

Patients who desire to enter the hospital are requested to write to the Director of the University Hospital, Ann Arbor, Michigan, to ascertain if there is room for their accommodation and to obtain a circular giving more fully the rules governing admission.

### **Psychopathic Hospital**

The legislature of the State of Michigan, with a wise conception of the needs of those afflicted with mental disorders, and with a high appreciation of the advances of modern medical research, make provision for the addition to the University Hospital of a ward especially equipped for the care of a limited number of acute cases of insanity. This was done with the view of furnishing an opportunity for the more thorough study of the conditions attending insanity in its incipient stages, and with the hope that, by the aid of specialists in all branches of medicine and surgery, and the laboratory facilities available at the University Hospital, there might result the discovery of causes of these diseases at present time unknown, and the development of methods of treatment that might increase the number of cures. The advantages to the medical student of such an addition to our hospital are apparent to all.

### **TRAINING SCHOOL FOR NURSES**

The University Training School for Nurses was established in 1891, and has grown with the expansion of the Hospital until it now numbers 190 nurses in training. The Superintendent of Nurses, her assistants, clinic nurses, and ward supervisors, constitute the administrative staff. Students are admitted to the school upon the same terms as to the College of Literature, Science, and the Arts of the University (see page 139), and diplomas are granted by the Board of Regents at the completion of three years of forty-eight weeks each, only after efficiency has been proved by class and ward work and by examination. For further information in regard to the school, application should be made to the Superintendent of Nurses and Principal of the School, University Hospital, Ann Arbor, Michigan.

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### **Combined Curriculum in Letters and Nursing**

A combined curriculum five years in length has been established, leading to the degree of Bachelor of Science (in the College of Literature, Science, and the Arts), and the Diploma in Nursing (in the Training School for Nurses). It is described in detail on page 169.

### **Public Health Nursing**

A program in Public Health Nursing has been introduced, including both theoretical and field work. Graduate Registered Nurses and senior pupil nurses of approved schools will be admitted, provided their preliminary education has been adequate to enable them to pursue the course with profit. Further information may be obtained by addressing Professor BARBARA H. BARTLETT, B.S., Director of Training in Public Health Nursing.

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## **MEDICAL BUILDING**

The Medical building, completed in 1903, measures 175 by 145 feet, with an interior court, measuring 75 by 45 feet, and has a high basement and three stories. It provides accommodation for the departments of hygiene, bacteriology, physiological chemistry, pathology, anatomy, histology, and embryology. It contains, further, two large amphitheatres, two lecture rooms, a faculty room, and the offices of the Dean and the Secretary.

The departments of the physiology and pharmacology have been provided for in the north wing of the building vacated by the department of chemistry. This building has been entirely rebuilt and refurnished, and in addition to the large laboratories, for general student use, there are also smaller rooms for the accommodation of assistants and research students.

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## **BEQUESTS**

### **The Elizabeth H. Bates Bequest**

In the spring of 1898, Dr. Elizabeth H. Bates, of Port Chester, N. Y., died leaving to the Medical School an estate valued at about \$140,000. Dr. Bates was in active practice for many years. She took a deep interest in the medical education of women, and the bequest may be looked upon as a recognition by her of the successful efforts made by the University of Michigan to give to women medical instruction equal to that furnished to men. In accordance with a provision of the will the title of Bates Professor of Diseases of Women

and Children has been given to Dr. Reuben Peterson. (The didactic and clinical work in connection with children's diseases is in charge of the chair of Pediatrics and Infectious Diseases.)

#### **The Treadwell Bequest**

The late Mrs. Edward Treadwell, of Ann Arbor, bequeathed to the University Hospital the sum of \$2,000.

#### **The Davis Bequest**

The late Mrs. Davis, of New Castle, Ind., made the University Hospital and the Ann Arbor Society for the Prevention of Cruelty to Animals her residuary legatees. The value of this bequest is about \$2,000.

#### **The Palmer Memorial Ward for Sick Children**

The Palmer Memorial Ward, the gift of Marie Love Palmer, as a memorial to her husband, the late Dr. Alonzo B. Palmer, former Professor of the Theory and Practice of Medicine in the Medical School, was set aside by the Board of Regents for the exclusive use of children. Together with this munificent gift was also bequeathed an endowment fund known as the Palmer Memorial Fund, to be used for the care of a certain number of patients in the ward. Seventy-eight beds under the direction of the Pediatric department are provided in this building for the care of children.

#### **The Mary Furnum Bequest**

The Mary Farnum bequest of two thousand dollars for sick children was set aside by the Board of Regents for the purpose of assisting in the purchase of laboratory apparatus for investigation in diseases of infancy and childhood. A number of very necessary bits of apparatus have been thus provided, making possible the carrying on of several pieces of research work which have contributed to the advancement of our knowledge of diseases peculiar to this period of life.

#### **The Mary Skeels Gradle Memorial Fund**

Mr. Walter Gradle, Lit. 1900, of Chicago, Illinois, has given to the University Hospital for the use of the Children's Ward, the sum of \$1,000, to be known as the Mary Skeels Gradle Memorial Fund.

#### **Fund of the Class of 1890**

Some years ago this class raised a sum of five hundred dollars to aid worthy students in finishing their courses. This amount has been paid and is in the hands of the Treasurer of the University. In 1915 the class voted to raise an additional five hundred dollars to be added to this sum.

### **The Samuel M. Feinberg Memorial Fund**

This fund was established in memory of Samuel M. Feinberg by his wife, Dr. Olga Pickman Feinberg, and his sister-in-law, Mrs. Simeon M. Feinberg. Mr. Feinberg was a student enrolled in the second class of the Medical School at the time of his death on December 20, 1918. This bequest of \$600 is to be used in the form of loans to senior students enrolled in the Medical School.

### **The Sternberg Medal**

The widow of the late General George M. Sternberg, at one time Surgeon General of the United States Army and one of the foremost and most valuable contributors to medical science of his time, has donated to the Medical School of the University of Michigan a sum of money, the interest of which is to be used for a Sternberg Medal to be awarded to the student in the Medical School who has, during his course, made the best record in Preventive Medicine.

### **RULES GOVERNING PARTICIPATION IN PUBLIC ACTIVITIES**

For the rules governing participation in public activities, see page 115.

## **AMALGAMATION OF THE MEDICAL SCHOOLS**

By action of the Board of Regents taken at its meeting of January 27, 1922, the amalgamation of the Homœopathic Medical School and the Medical School of the University was consummated June 30, 1922; it being specifically understood and conditioned that a homœopathic ward for men and a homœopathic ward for women should be maintained, and that two free beds for Ann Arbor city patients should be maintained, the latter in accordance with the condition in the deed of gift from the City of Ann Arbor of the site on which the Homœopathic Hospital was erected.

The following appointments have been made in the Medical School.

(1) Hugh M. Beebe, M.D., Director of the Homœopathic Wards in the University Hospital on the part-time basis with the rank of full professor in the Medical School, beginning July 1, 1922.

(2) Scott C. Runnels, M.D., Director of Homœopathic Laboratories on the part-time basis with the rank of full professor in the Medical School, beginning July 1, 1922.

(3) Linn J. Boyd, M.D., Assistant Professor of Homœopathic Practice in the Medical School on the full-time basis, beginning July 1, 1922.

(4) Alfred G. Nast, M.D., Assistant Professor of Homœopathic Materia Medica in the Medical School on the full-time basis, beginning July 1, 1922.

Further, there has been established by Dr. Runnels a laboratory in which scientific investigation can be made in the whole field of Homœopathic Materia Medica.

The students of the Homœopathic Medical School have been permitted to transfer to the Medical School and pursue their studies for the degree of Doctor of Medicine without loss of time because of the consolidation. The various courses offered are described on page 523. At graduation the degree of Doctor of Medicine will be conferred and the diploma will be accompanied by an appropriate document certifying to their completion of the course in Homœopathy.

The former Homœopathic Hospital has been consolidated with the University Hospital and placed under the direction of the Director of the University Hospital. It is known as the South Division, on account of its location.

The Nurses' Training Schools were also consolidated June 30, 1922; the nurses registered in February, 1922, in the Homœopathic Training School were transferred at the time of consolidation to the University Hospital Training School with full credit; and nurses registered in the Homœopathic Training School prior to February, 1922, who graduate after June, 1922, were given the option of receiving the diploma of the Homœopathic Training School or that of the University Hospital Training School.

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## FEES AND EXPENSES

*The Matriculation Fee and the Annual Fee must be paid in advance, and no student can enter upon his work until after such payment. For the rules governing Second Semester fees and the refunding of fees, see page 136.*

**MATRICULATION FEE.**—For Michigan students, \$10; for all others, \$25.

**ANNUAL FEE.**—For Michigan students, \$180 for men, \$175 for women; for all others, \$260 for men, \$255 for women. This annual fee covers all necessary laboratory and demonstration course fees.

**PRACTITIONERS' PART TIME FEE.**—\$25.

**GRADUATION FEE.**—For all alike, \$10.

The total amount of fees paid to the University during the whole four years' course for matriculation, incidental expenses, materials used, and graduation is, for Michigan students, about \$740.00, and for all others, about \$1075.00.

For additional information in regard to expenses, see page 138.

# Law School

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*A special Announcement, giving further information in regard to this School is published annually. For copies of this Announcement, or for other information relating to this School, address the Dean of the Law School, Ann Arbor, Michigan.*

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The Law School of the University of Michigan was opened in 1859. The first Faculty was composed of James V. Campbell, Dean, and Charles I. Walker and Thomas M. Cooley, Professors. With these men as founders and leaders, the growth and influence of the School were marked. The Faculty is now composed of fourteen resident members, who devote themselves regularly and continuously to the work of instruction, and of several non-resident lecturers, who offer courses in special fields in law as indicated in the faculty list to be found elsewhere in this catalogue.

Instruction is offered in all the branches of the common law, equity, the statute law of the United States, Roman law and some of its modern adaptations, and the science of jurisprudence. It is believed that students are best trained for the practice of law not by studying it as mere dogma and collections of precedents, but by getting a broad view of its origin, development, and function. While, therefore, careful attention is given to practice, procedure, and the other so-called practical features of the law, strong emphasis is also placed upon the importance of a scholarly grasp of the law as a science. The greater part of the instruction takes the form of a free discussion of legal principles as disclosed in reported cases. This analytical study is supplemented by the practical and concrete features of the work in the practice court, in trial practice, and the other procedural courses. Work of this character is so arranged as not to interfere with the thorough and systematic study of the theory of the law. After years of experimentation with and development of these courses, results have been obtained which justify the Faculty in believing that this work is of value, not only in training students in procedure, but principally in that it throws a clarifying and vivifying light upon the theory of both procedural and substantive law.

There can be little doubt that the conceded efficiency of the modern law schools in our better universities is due in large part to the fact that the instruction has been confined to the main purpose for which law schools are established, viz., the study of law, to the ex-

clusion of all courses and methods which do not admit of dealing with first-hand material in such a way as to require intensive thinking by the student. While the primary function of law schools is to train men to practice law, nevertheless, in order that there may be opportunity for the training of law teachers, scholars and writers, the time has undoubtedly come when instruction of an advanced nature should be offered in some of the university law schools. To meet this requirement, this Law School offers *advanced* instruction in jurisprudence, the comparative study of law, history of law, philosophy of law, the Roman law and other related subjects. A detailed announcement of these courses will be found on page 563, and also in the Announcement of the Graduate School.

The academic year extends from Tuesday, September 23, 1924, to Monday, June 15, 1925.

For information concerning the summer session of this School, see the chapter on the Summer Session.

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## DIRECTIONS TO APPLICANTS FOR ADMISSION

Before an applicant can become eligible for admission to the Law School he must: first, present to the Dean of the Law School satisfactory evidence that he meets the requirements relating to preliminary education and character, as set forth *infra*; second, present to the Dean of the Law School the receipt of the University Treasurer, showing payment by him of the matriculation fee and the annual fee.

To avoid delay and disappointment, it is advisable that the applicant take steps to satisfy the first requirement either by correspondence or otherwise, prior to presenting himself finally for admission. Having satisfied that requirement and having been advised of his eligibility for admission, he should then present himself at the Recorder's office in the Law Building, register his name as a student in the Law School, and pay his fees to the Treasurer of the University. He is then entitled to apply for final admission. In case of rejection, the money paid will be refunded by the Treasurer.

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## REQUIREMENTS FOR ADMISSION

Applicants for admission to the first year class must be at least nineteen, to the second year class, twenty, and to the third year class, twenty-one years of age. Applicants for admission to the fourth year class or as special students must be at least twenty-one years of age.

Every applicant for admission, whether as a regular or as a special student, must present a certificate of character. This may be in the form of a certificate of graduation, or of honorable dismissal from the school with which the applicant was last connected, or, in the case of special students who cannot present such a certificate in the form of a general letter as to character.

### **WHEN STUDENTS MAY ENTER**

Students should enter at the beginning of the first semester or of the Summer Session, though under special circumstances they may enter, with the special permission of the Dean, at the beginning of the second semester. In any case, students are expected to enroll at the opening of a particular session. Those who enter late necessarily lose much of the work, and absences at the beginning of a session are treated like other absences in reducing the number of hours of credit that may be earned. In no event can students who present themselves more than a month after the opening of any session be permitted to work for credit toward graduation during that session.

Candidates for advanced standing must present themselves for examination at least one week before the opening of the School.

### **ADMISSION AS A CANDIDATE FOR A DEGREE**

The following persons are eligible for admission to the School as candidates for a degree:

First, Graduates of approved universities or colleges.

Second, Students who, in addition to an academic or high school course of four years, have satisfactorily completed two full years of work in an approved university or college.

### **CHANGES IN REQUIREMENTS FOR ADMISSION**

Beginning with the fall of 1926, the satisfactory completion of three years of collegiate work in an approved college or university, in addition to an academic or high school course of four years, will be required of all students as a pre-requisite to admission to the Law School as candidates for a degree.

Beginning with the fall of 1928 the following persons only will be admitted to the Law School as candidates for a degree:

First, persons who have been graduated from an approved college or university with the degree of Bachelor of Arts or its equivalent.

Second, students who have been admitted to the combined curriculum in Letters and Law at the University of Michigan, or to the similar combined curriculum of any approved university or college which makes provision for such a curriculum, provided it is administered on substantially the same plan and with the same restrictions as that of the University of Michigan.



The school does not specify any particular subjects which must be taken during the required years of college work. In general, students are advised to take such courses as those suggested for a two-year preliminary curriculum in the College of Literature, Science, and the Arts, of this University, on page 168. Work of high school or academic grade taken during the college year will not be accepted as meeting the requirement of a college year. College courses in which there are unremoved conditions or other deficiencies will not be accepted.

In all cases before he presents himself for final admission the applicant should present to the Dean of the School evidence that he comes within some one of the classes named. This, in the case of a university or college graduate, should be in the form of a certificate of graduation; in the case of other applicants, in the form of a certificate showing in detail the conditions of admission and the university or college work accomplished, and including an honorable dismissal signed by the proper authority. *A diploma will not be accepted as evidence of the completion of the required work.* Such certificates should be mailed to the Dean of the school at the earliest possible time. *The applicant will save time and prevent inconvenience and possible confusion by filing his credentials before September first.*

All students planning to pursue the required college work in this University preliminary to entering the Law School should make their applications for admission to the Registrar. Students who have taken their college work in other colleges or universities, should make their applications for admission directly to the Dean of the Law School.

### ADMISSION OF SPECIAL STUDENTS

Persons who are more than twenty-one years of age, but whose preliminary training has not been sufficiently extensive to satisfy the requirements for admission as regular students, may, in exceptional cases, be admitted as special students. The entry of special students is not encouraged. Applicants for admission under this rule must submit to the Dean recommendations as to character and evidence of the possession of general education, maturity, experience, and exceptional ability that may be considered a fair equivalent of the formal preliminary requirements made in the case of regular students.

No one should present himself for admission as a special student until he has first received from the Dean assurance that his application has been favorably acted upon.

### ADMISSION TO ADVANCED STANDING

Persons who have the necessary qualifications for admission to the school, as set forth above, and who have satisfactorily completed work in an approved law school; may, upon presentation of a certificate of scholarship and of honorable dismissal from such school,

become candidates for advanced standing in the school to the extent of the work so completed. The certificate should show the nature of the work, the time it was pursued, the text books used, and the grades received.

All candidates for advanced standing should send the above mentioned certificates of preparatory work and of legal study to the Dean of the school at as early a date as possible prior to presenting themselves for admission. He will then inform them whether they may receive advanced credit and the time that will probably be required for them to complete the course.

The summer session of the school offers advantages to applicants for advanced standing, which are explained in the chapter on the Summer Session.

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## COMBINED CURRICULUM IN LETTERS AND LAW

The marked tendency of the day is toward an increasingly thorough equipment for every profession. In no profession has the standard of proficiency more rapidly advanced than in the law. Accordingly every student expecting to enter this school is urged to take as thorough and complete a collegiate course as his circumstances will permit. All who can do so are, therefore, urged to consider the combined curriculum in letters and law more fully described on page 167. It is the aim of this curriculum to provide a broad collegiate training with a thorough technical preparation for the practice of law.

### SIX-YEAR COMBINED CURRICULUM

By taking the Combined Curriculum in Letters and Law it is now possible for students to shorten from seven to six years the time required to earn the degrees of Bachelor of Arts and Bachelor of Laws or Juris Doctor. The work of students who receive permission to enter upon the combined curriculum is under the supervision of the joint special committee consisting for the current year of Professors EFFINGER, BATES, HALL, CROSS, and GRISMORE.

A full description of the combined curriculum may be found on pages 167 and 168, where may be found, also, for those who cannot take the full six-year curriculum, a suggested two-year program preliminary to the study of law.

### DEGREES

#### Three Year Curriculum (LL.B.)

The degree of Bachelor of Laws is conferred upon those students in the School who have met the entrance requirements for candidates for the degree, as stated on page 551, and who have satisfactorily

completed the three-year curriculum in accordance with the regulations established by the faculty. For those who come without advanced standing in law, this means regular attendance throughout three University years, or the equivalent in University years and summer sessions. For this purpose, three summer sessions may be considered as the equivalent of one University year. This period of attendance may be proportionately reduced for students who enter upon advanced standing. In no case, however, will this degree be conferred upon any student who has not been in attendance for at least the entire third year of the course.

### **Three Year Curriculum (J.D.)**

The degree of Juris Doctor (J.D.) is conferred upon students who have obtained the degree of Bachelor of Arts, or a substantially equivalent degree, either in the College of Literature, Science, and the Arts, of this University, or in some other approved college or university, and who have pursued the study of Law in this School for three University years, or in any approved law school for one year and in this school for at least two years, and who have maintained an average grade of B in their work.

### **Fourth Year Curriculum (LL.M.)**

The degree of Master of Laws will be conferred upon those students who hold the degree of Bachelor of Laws from an approved institution, and who have completed in this School a fourth year of work as prescribed by the faculty, and explained on page 562.

### **The Four Year Curriculum (LL.M. or J.D.)**

Students who meet the entrance requirement of two years of college work and enter upon the four-year curriculum may receive the degree of Master of Laws (LL.M.) or the degree of Juris Doctor (J.D.) according to the standard of scholarship maintained by them in the Law School. The degree of Master of Laws is conferred upon those students who have completed the four-year curriculum, of which at least two years, including the final year, must be taken in this school, and who have maintained a satisfactory standard of scholarship throughout. The degree of Doctor of Law is conferred upon those students who have pursued the study of law for four years in any approved law school, of which at least two years, including the final year, must be taken in this school, and who have maintained an average grade of B.

### **REGULATIONS APPLICABLE TO ALL DEGREES**

Credit earned in the summer sessions will be counted toward these degrees.

Only those who are present in person may receive diplomas on Commencement Day. Others who have satisfied all the requirements for graduation, including the payment of the graduation fee, will

receive their degrees at a subsequent meeting of the Board of Regents.

The graduation fee of ten dollars must be paid to the Treasurer of the University at least twenty-five days prior to the date of graduation.

### **LIBRARY**

The Law Library now contains about sixty-five thousand volumes, including all the published reports of the courts of last resort of every state in the Union and those of most of the intermediate appellate courts, the Federal Courts, and the English, Scotch, Irish, and British Colonial Reports. Duplicate, and in some cases triplicate sets of several of those reports have been added. There is also an extensive collection of treatises and text-books, both American, English, and European. Nearly complete sets of statutes and session laws of the United States, Great Britain and her colonies, and practically all of the American and English legal periodicals are in the Library.

The Library has been enriched by a number of gifts from friends of the University, including the Honorable Richard Fletcher, formerly one of the Justices of the Supreme Court of Massachusetts, the Honorable O. H. Dean, of Kansas City, and the heirs of the late Honorable Christian H. Buhl, of Detroit, and Honorable Samuel T. Douglass, formerly one of the Justices of the Supreme Court of Michigan, the Honorable Thomas M. Cooley, former President H. B. Hutchins, the estate of the late E. W. Pendleton, Justice J. H. Steere of the Michigan Supreme Court, and the Law Class of 1922.

The General Library of the University, which contains more than four hundred thousand volumes, is open to use by students in the Law School. It is rich in works of interest and importance to the lawyer.

### **THE LAW CURRICULUM**

#### **Courses: Regulations as to Credit**

To secure the degree of LL.B. or the degree of J.D. in the three year curriculum the student must complete three years of law work as prescribed by the regulations of the School; the scope of this work is indicated in the following pages. The curriculum is a graded one and extends through three years of nine months each. The student by entering upon his work in June may complete the full curriculum in three summer sessions and two full years. The courses offered in the summer session are described in a later chapter.

To secure the degree of Master of Laws (LL.M.) or the degree of Juris Doctor (J.D.) in the four year curriculum the student must complete four years of work as prescribed by the regulations of the School; the scope of this work is indicated in the following pages. The four year curriculum is also a graded one, and extends through four years of nine months each. Work taken during the summer session is counted toward the degrees in this curriculum, and as three summer sessions are the equivalent of one full year of work, various combinations for saving time may be made.

## COURSES OF INSTRUCTION

The following is a statement of the work offered in the School. Not more than 13 hours may be elected in any semester after the first year. At the opening of each semester a schedule showing the hours of recitations and the books used in the various courses is published and distributed.

### FIRST YEAR

*Common Law Pleading.*—Three hours a week, first semester; two hours a week, second semester. Professor SUNDERLAND.

*Contracts.*—Four hours a week for the year. Professor GRISMORE.

*Criminal Law and Procedure.*—General principles of liability to punishment. Characteristics of particular crimes; procedure in enforcing liability. Two hours a week for the year. Professor WAITE.

*Property I.*—Personal property, estates, titles. Three hours a week, first semester; four hours a week, second semester. Professors AIGLER, HOLBROOK, and SHARTEL.

*Torts.*—Three hours a week, first semester; two hours a week, second semester. Professors WILGUS and GOODRICH.

### SECOND YEAR

*Equity I.*—A general introduction to the principles of equity, with particular consideration of the nature of equity jurisdiction, and specific performance of contracts. Three hours a week, first semester. Professor DURFEE.

*Equity II.*—The principles of equity further considered with reference to specific reparation and prevention of torts, bills of peace, bills *quia timet* and reformation and rescission for mistake. Three hours a week, second semester. Professor DURFEE.

*Evidence.*—Two hours a week for the year. Professor LANE.

*Electives.*—Seven or eight hours each semester.

### THIRD YEAR

*Practice Court.*—The purpose and nature of this work are explained on page 563. The class will be divided into groups of four. One hour credit, second semester. Code Pleading is a prerequisite for those electing to do the work under the law of a code state. Professor SUNDERLAND.

*Electives*.—Twelve or thirteen hours first semester; eleven or twelve hours second semester.

#### FOURTH YEAR

*Roman Law*.—This course will be made an introduction to comparative law, with a study of selections from the Roman Corpus Juris, treatises on modern civil law and the modern codes and, so far as may be possible, the tracing of the development of fundamental legal concepts in the derivatives of the Roman system. Pound's "Readings in Roman Law" will be used as the basis of the course, but a reading knowledge of Latin and of French or German is most desirable. Three hours a week, first semester. Professor DRAKE.

*Jurisprudence*.—The philosophic bases of law, a study of the concept of justice and its relation to law in the Continental and English systems. The course will be given as a proseminary, with lectures by the instructor and topical studies and reports by the students. The various systems of judicial philosophy will be examined with the purpose of determining, if possible, their bearing upon the practical problems of our present day law. No text-book will be used, but the several volumes of the "Legal Philosophy Series" will be drawn upon for the studies and reports. Three hours a week, second semester. Professor DRAKE.

*Electives*.—Nine or ten hours each semester.

#### ELECTIVES

In addition to the above prescribed courses, each candidate for a degree will elect, from the following courses, enough hours to complete the requirements for a degree. Except when the contrary is expressly stated, all of the following courses will normally be offered every year. As to a few of these courses, however, the right is reserved to omit them, or to give them only in alternate years, in case such action is required.

*Admiralty*.—The extent of admiralty and maritime jurisdiction; maritime liens, bottomry, and respondentia obligations; contracts of affreightment and charter parties; maritime torts; general average, salvage, etc. Two hours per week, second semester. Professor DICKINSON.

*Agency*.—The relation of principal and agent, together with the subject of master and servant and the workmen's compensation acts. Three hours a week for the first semester. Professor ———.

*Bailments and Carriers.*—Brief consideration of bailments in general and particular attention to the law of pledge, innkeepers and common carriers of goods; carriers of passengers; the Post Office, and telegraph and telephone companies as carriers of messages. Two hours a week, first semester. Professor GOWDARD.

*Bankruptcy.*—Proceedings under the Bankruptcy Act, including the law of fraudulent conveyances. Two hours a week, second semester. Professor HOLBROOK.

*Bills of Exchange and Promissory Notes.*—Principles of negotiability and characteristics of negotiable instruments, with special reference to the Uniform Negotiable Instruments Act. Three hours a week, second semester. Professor AIGLER.

*Code Pleading.*—Two hours a week, first semester. This course is a pre-requisite to the election of Practice Court under the law of a code state. Professor SUNDERLAND.

*Conflict of Laws.*—A study of the principles which control in determining when a foreign law, a law of some other state than that of the forum, should be applied in adjudicating the rights of parties. Two hours a week, for the year. Professor GOODRICH.

*Constitutional Law I.*—General principles of constitutional law, federal and state. Making and changing constitutions; function of judiciary in enforcing constitutions; separation and delegation of governmental powers; political and civil rights; interstate privileges and immunities of citizens; due process and equal protection of law; police power; taxation; eminent domain. Three hours a week, first semester. Professor BATES.

*Constitutional Law II.*—The Federal Government. General scope of federal powers; money, banking, postal and military powers; foreign relations; territories, dependencies and new states; federal taxation; regulation of commerce; intergovernmental relations; jurisdiction of federal courts. Three hours a week, second semester. Professor BATES.

*Corporations, Private.*—Two hours a week for the year. Professor WILGUS.

*Damages.*—Two hours a week, first semester. Professor DRAKE.

*Domestic Relations.*—Husband and wife, parent and child, infancy insanity, alienage. Two hours a week, first semester. Professor HOLBROOK.

*Insurance Law.*—History, nature and general principles of insurance law, as applied to the various forms of insurance contracts. Two hours a week, second semester. Professor LANE.

*International Law.*—An introduction to public international law, chiefly as it is interpreted and applied by the courts, including the law with respect to foreign states, the succession of states, nationality and allegiance, territorial jurisdiction, extraterritorial jurisdiction, and treaties. Two hours a week, first semester. Professor DICKINSON.

*International Law I-A.*—A more intensive study of public international law, based upon selected readings from reports of cases, statutes, treaties, standard treatises, and other sources. Among the topics included are the following: nature and authority of international law, relation to national law, recognition and classification of states as persons, nationality and allegiance, territorial jurisdiction, extraterritorial jurisdiction, immunities from jurisdiction, extradition, state succession, treaties, and the settlement of international disputes. Special investigation of a selected topic will constitute a substantial part of the work required. Two hours a week for the year. Primarily for fourth year students. Open to third year students by special permission only. Professor DICKINSON.

*Irrigation Law.*—Riparian rights in general; their extent, use and protection; the doctrine of appropriation; initiation of rights; priorities; transfer and extinguishment of rights; underground waters; interstate streams. Two hours a week, second semester. Professor HOLBROOK. (This course given in 1923-1924 and alternate years thereafter.)

*Jurisprudence.*—The object of this course is to give students, after their study of the various branches of the law in isolation, a systematic and comprehensive study of the few underlying principles of all laws, taking Pound's Readings in Jurisprudence as the basis of lectures and recitations. Three hours a week, second semester. Professor DRAKE.

*Mining Law.*—The discovery and location of lode and placer claims under the mining laws; assessment work; extra-lateral rights; adverse claims, mining claims and other public-land rights; mining partnerships. Two hours a week, second semester. Professor HOLBROOK. (This course will be given in 1922-1923 and in alternate years thereafter.)

*Mortgages.*—Real property mortgages; essential elements of the mortgage; nature and incidents of the mortgage relation; extent of the mortgage lien; priorities, including the operation of the recording acts; redemption and foreclosure; assignment of mortgages; conveyance of the equity of redemption and marshalling. Two hours a week, second semester. Professor DURFEE.

*Municipal Corporations.*—Nature, constitution, powers, and liabilities. Two hours a week, first semester. Professor HOLBROOK.



*Partnership.*—Three hours a week, second semester. Professor DRAKE.

*Patent Law.*—The fundamental principles, development and interpretation of the statutes allowing special rights to inventors; the application of the law in findings of fact and a general survey of the procedure in suits on patents. Two hours a week, second semester. Professor WAITE.

*Property (Rights in Land).*—Three hours a week, first semester. Professor SHARTEL.

*Property (Future Interests).*—Two hours a week for the year. Professor GODDARD.

*Public Offices and Extraordinary Legal Remedies.*—Nature of office; eligibility; appointment and election acceptance; qualifying; officers *de facto*, validity of contracts concerning offices and officers; resignation; removal; acceptance of incompatible office; rights, duties, and liabilities of officers. Mandamus; quo warranto; prohibition; certiorari; procedendo; habeas corpus. Two hours a week, second semester. Professor HOLBROOK.

*Public Service Companies.*—A study of the rights, duties, and regulation of utilities affected with a public interests, including valuation and rate regulation, but excluding the law of common carriers in so far as it has been treated in the course in Bailments and Carriers. Two hours a week, second semester. Professor GODDARD.

*Quasi-Contracts.*—The doctrine of unjust enrichment—recovery of benefits conferred under various forms of constraint and mistake, and in performance of contracts which are unenforceable by reason of illegality, the statute of frauds, impossibility of performance or breach; waiver of tort and restitution as a remedy for breach of contract. Two hours a week, first semester. Professor DUFEE.

*Sales.*—Transfer of title to personal property as the result of contract; rules for determining intent as to relative time of its transfer; effect of fraud in the inducement of the contract; rights and remedies of the parties to the contract, and of other parties affected by it; warranties and their effects. Three hours a week, first semester. Professor WAITE.

*Suretyship.*—Suretyship and guaranty; essentials of the suretyship relation; surety's defenses and surety's rights and remedies; with some reference to common cases of quasi-suretyship. Two hours a week, first semester. Professor DUFEE.

*Taxation.*—The course treats of the various kinds of taxes, including income taxes, and of the remedies for illegal taxation. Two hours a week, second semester. Professor GOODRICH.

*Trial and Appellate Practice.*—Two hours a week for the year. Professor SUNDERLAND.

*Trusts.*—The nature, creation, and essential elements of express trusts, both private and charitable, including a brief comparative study of the relations between banks and their depositors and of assignments of choses in action; resulting and constructive trusts; the beneficiary's remedies against the trustee; transfers of the beneficiary's interest; persons bound by the trust; the trustee's liabilities of third persons; investment of trust funds; and termination of trusts. Two hours a week for the year. Professor DICKINSON.

*Wills and Administration.*—Gifts *causa mortis*; descent and distribution, testamentary capacity; execution; revocation and revival of wills; ademption and lapse of legacies; executors and administrators; payment of legacies; distribution of estates. Three hours a week, second semester. Professors GODDARD and SHARTEL.

### SUMMER SESSION

The summer session of the Law School continues for ten weeks. It is divided into two terms of five weeks each. The courses given are identical with the corresponding courses of the regular session, and full credit toward graduation is allowed upon their completion. The work is so arranged that a student who cares to avail himself of the summer session, by beginning his law study in June of any year, may save practically a year in the time required for graduation. Three summer sessions are equivalent to one of the three years of residence required for a degree.

The Summer Session of 1924 will begin on June 17 and end August 28. The following courses will be given:

*Agency.*—Six hours a week for the first five weeks. *Two hours credit.* Professor ———.

*Corporations.*—Six hours a week for ten weeks. *Four hours credit.* Professor ———.

*Criminal Law.*—Six hours a week for ten weeks. *Two hours credit.* Professor SHARTEL.

*Equity.*—Six hours a week for ten weeks. *Four hours credit.* Professor DUFFEE.

*Evidence.*—Six hours a week for ten weeks. *Four hours credit.* Professor HOLBROOK.

*Mortgages.*—Six hours a week for the second five weeks. *Two hours credit.* Professor LANGMAID.

*Sales.*—Six hours a week for the second five weeks. *Two hours credit.* Professor WAITE.

*Torts.*—Eight hours a week for the first five weeks; seven hours a week for the second five weeks. *Five hours credit.* Professor VAN VLECK.

*Trial and Appellate Practice.*—Six hours a week for ten weeks. *Four hours credit.* Professor ATKINSON.

*Wills.*—Six hours a week for the first five weeks. *Two hours credit.* Professor MCGOVNEY.

#### FOURTH YEAR CURRICULUM

The degree of Master of Laws is conferred upon persons holding the degree of Bachelor of Laws, granted by this University or by any approved Law School, provided that the applicant has maintained a high standard of scholarship in the law school from which he obtained his degree, and has completed a fourth year of law study as prescribed by the Faculty.

Graduates of the Law School of the University of Michigan will be admitted as candidates for the degree of Master of Laws only upon obtaining the permission of the Dean. Those who have received their degrees from other law schools must present certificates from such schools showing in detail the courses taken and the scholarship grades obtained in each course, and must, in addition, present a statement from the Dean, or other officer of such school, to the effect that the applicant is qualified to pursue further work in law and is recommended therefor. This may be in a separate communication, or in the certificate above referred to. It is proposed to admit to the course only those students whose records indicate that they are above mediocrity and will derive genuine benefit from further law work.

Candidates for the degree of Master of Laws shall take not less than ten nor more than twelve hours of work each semester. This work shall be elected:

(a) from courses given in this school for which the candidate has not already received credit, if he be a graduate of this school, and of which he has not the equivalent, if he be a graduate of any other law school. All candidates for this degree shall be required to take courses in Roman Law and in the Science of Jurisprudence, provided they have not received credit for said courses or their equivalents. And, to a limited extent.

(b) from courses offered by the College of Literature, Science, and the Arts, directly connected with or collateral to some phase of the law.

The following courses offered in this School are open only to graduate students.

*The Elements of Roman and Comparative Law.*—Lectures and recitations. An outline of the fundamental principles of Roman and Comparative Law as given in Pound's Readings in Roman Law. Three hours a week, first semester. Professor DRAKE.

*Roman Law.*—Selected Titles of the Digest. Readings, interpretations, and a critical discussion of

(a) *De Acquirendo Rerum Dominio*, XLL, 1; *De Acquirenda vei Amittenda Possessione* XLI, 2. Two hours a week, second semester. Professor DRAKE.

(b) *De Obligationibus*. Two hours a week, second semester. Professor DRAKE.

*History of Legal Philosophy, Proseminary.*—A study of the chief schools of legal philosophy of ancient, medieval, and modern periods. Three hours a week. Professor DRAKE.

### THE PRACTICE COURT

As an essential part of the work in procedure, supplementing the class-room courses offered in pleading and practice, the Law School maintains a Practice Court under the direction and control of members of the faculty. Its purpose is to give the students an opportunity to coördinate their knowledge of procedure and their knowledge of the substantive law in the conduct of an actually litigated controversy. Three features are specially developed and emphasized, namely, the drawing of pleadings, the writing of briefs, and the oral argument of questions of law.

For carrying on the work of the Court the third year students are divided into groups of four, two in each group representing the plaintiff and two the defendant. Each group is allowed to choose the jurisdiction in which the case to which it is assigned is supposed to be brought, and all matters touching procedure are determined in accordance with the law of that jurisdiction. To each group is given a statement of facts involving both difficult questions of pleading and debatable principles of law. Process and pleadings are prepared by the members of the group who carry the case to a final issue. Interlocutory hearings on motions and formal demurrers are held each week on regular motion days, and the students are required to draw the proper orders to be made thereon. After the case has reached final issue on the pleadings, the group meets with one of the professors in charge of the Court for a thorough and critical examination of the pleadings and proceedings in the case. As a result of this criticism the pleadings are frequently required to be redraw or radically amended. The case is then ready to be set down for argument before some member of the faculty. At the time of

the argument of the case the students representing each side are required to present to the presiding judge a complete and adequate brief on the law involved, prepared in accordance with approved legal practice and showing evidence of diligent and intelligent use of the resources of the library. It is expected that the authorities bearing upon the case will be exhaustively studied and effectively presented. The oral argument covers the same scope as the briefs, and the students participating are expected to show a ready familiarity with all the important authorities relating to the questions to be discussed, without too frequent use of briefs, memoranda or books.

The cases assigned in the Practice Court cover all the principal fields of law and equity. They are litigated in accordance with the usual rules of practice as actual cases of first impression in the several jurisdictions chosen and are decided on the basis of the weight of authority thus carrying the students into a study of the whole body of relevant American and English law.

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## THE LAWYERS' CLUB

A graduate of the College of Literature, Science, and the Arts and of the Law School of the University has made a most munificent and original gift to the cause of legal education. It takes the form of a group of connected buildings, to include living accommodations for one hundred and seventy-three students, with bedrooms and studies, a beautiful dining hall which will accommodate upwards of three hundred students, and a number of suites for visiting lawyers, assembly room, reading room, and other features appropriate to a club of this character, all to be known as The Lawyers' Club.

It is expected that these buildings will be ready for occupancy by the opening of the University in 1924. The construction is of the best possible character, and the architectural designs are of an extremely interesting and attractive Gothic type. These buildings are being erected upon a tract of land acquired by the University for this purpose, and are so located upon that tract that it will be possible to add dormitories and a law school building, making a quadrangle. It is hoped that the University may secure the means for the other buildings for such a quadrangle, in the near future.

The donor and the University authorities believe that the gift will make possible a development of legal education of a superior type. The advantage of having students housed under the most sanitary and generally attractive conditions is not the greatest benefit to be derived from this gift. It is believed that a large number of graduates and other lawyers will desire to join the Lawyers' Club and to visit the University for the purpose of taking advantage of the Law Library to work upon difficult law problems, free from the

distractions and interruptions of city practice. Contacts of these judges and lawyers with the students will undoubtedly prove of great benefit.

A plan of assignment of rooms, the determination of preference, and the rules and scheme of administration of the buildings above referred to, will be formulated and published in the near future.

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## MICHIGAN LAW REVIEW

THE MICHIGAN LAW REVIEW is a legal periodical conducted under the auspices of the Law School. It is edited by an Editorial Board chosen from the Law Faculty, but all members of the Faculty co-operate in conducting it. Students selected from the second and third year classes act as editorial assistants.

The purpose is to give expression to the legal scholarship of the University, and to serve the profession and the public by timely discussion of legal problems, and by calling attention to the more important developments in the field of jurisprudence.

The REVIEW is made up of four chief departments: First, leading articles upon important and interesting legal subjects; second, notes and comments upon current topics and significant occurrences in the legal world; third, abstracts and digests of the most important recent cases; and fourth, reviews of books and comments on legal literature.

It is the aim to make the REVIEW practical without usurping the functions of the text-book or the digest, and scholarly without being so academic in character as to be out of touch with the needs and aims of the lawyer of today. It contains about eighty pages in each issue and regularly appear on the first of each month during the academic year. The enterprise is in no sense conducted for the pecuniary benefit of those engaged in it. All profits which may accrue are devoted to the improvement of the magazine.

Mr. William W. Cook, of New York, who is a graduate of the College of Literature, Science, and the Arts of the University in 1880 and of the Law School in 1882, has presented to the University of Michigan the entire income from royalties on the latest edition of his well-known work on "Corporations," to be used in providing for the publication of articles of a high degree of excellence in the Michigan Law Review. Specifically, the purpose of this gift is stated to be to obtain and publish articles on legal, administrative and constitutional questions of the day. It will permit the Michigan Law Review to secure articles from the most competent authorities on legal subjects and is to be regarded as a very notable step in the encouragement of the production of legal literature of the highest type.

Special subscription rates are provided for students in the School. It is recommended that general advantage be taken of this opportunity to keep in touch with current legal problems and literature.

### **RULES GOVERNING PARTICIPATION IN PUBLIC ACTIVITIES**

For rules governing participation in public activities, see page 115.

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### **FEEES AND EXPENSES**

*The Matriculation Fee and the Annual Fee must be paid in advance, and no student may enter upon his work until after such payment. For the rules governing Second Semester fees and the refunding of fees, see page 136.*

**MATRICULATION FEE.**—For Michigan students, \$10; for all others \$25.

**ANNUAL FEE.**—For Michigan students, \$110.00 for men, \$105.00 for women; for all others, \$130.00 for men; \$125.00 for women.

**GRADUATION FEE.**—For all alike, \$10.

For additional information in regard to expenses, see page 138.

# College of Pharmacy

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*A Special Announcement giving further information in regard to this College is published annually. For copies of this Announcement, or for other information relating to the school, address The College of Pharmacy, Ann Arbor, Michigan.*

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The College of Pharmacy of the University of Michigan was organized as an independent unit of the University on December 29, 1876. Previous to that time (from December 22, 1868), special instruction in Pharmacy had been given as a part of the curriculum of the College of Literature, Science, and the Arts. It was the first of the University Colleges of Pharmacy in the United States. It is essentially an assembled college since all subjects in the curriculum other than Pharmacy are given by members of the faculty of each department of specialization of the various colleges composing the University. Thus, without additional expense to the State competent authority in each subject is available.

The College of Pharmacy provides instruction in all branches of Pharmacy and related chemical pursuits. Graduates are assured of such thorough training in both commercial and professional pharmacy that they may regard the passing of State Board Examinations as incidental to their qualifications, rather than the achievement for which they have been striving. The course includes a broad and extended training in chemistry, thus preparing each student for service as a manufacturing chemist, or as an analytical chemist. He is furthermore in a position to meet the demands of food or drug manufacturers, who must at all times maintain the standard of purity and high quality required by the State and Federal laws.

The schedule of studies has been outlined with intent to occupy the entire time of each student. In case a student finds it necessary to work outside to help defray expenses, he must expect to elect fewer hours of University work. This College offers decided advantages, in that it requires the same high standards of scholarship as all other schools and colleges of the University and gives excellent mental and physical discipline in the pursuance of severe studies and exact operations by each student.

The college year extends from Tuesday, September 23, 1924, to Monday, June 15, 1925. Students of the first year are released the second Friday before Commencement.



For the full regular work, admission cannot be granted at any other time than at the opening of the first or the second semester (February 9, 1925), as students are instructed in classes in progressive order. For investigation, or special studies, students can be received at any time when there is room in the laboratories. Many of the subjects taught in the College can also be taken in the Summer Session of the University (see a subsequent chapter).

## REQUIREMENTS FOR ADMISSION

Applicants for admission as undergraduates must be at least sixteen years of age, and must have completed the requirements for admission as here described. These requirements are stated in units, a unit meaning the equivalent of five recitations a week in one branch of study for one year, amounting in the aggregate to not less than one hundred twenty sixty-minute hours in the clear. Two to three hours laboratory, drawing, or shopwork, will be counted as equivalent to one of recitation.

### ADMISSION ON CERTIFICATE

Only those applicants are admitted on certificate who are officially recommended graduates of high schools, accredited either to this or to other state universities. High school principals are expected to recommend only those graduates whose ability and scholarship are obviously so superior that the school is willing to stand sponsor for their success at the University. Graduates must have completed a full four-years' curriculum covering at least fifteen units, including the following:

English .....	3 units
A Foreign Language.....	2 units
Algebra .....	1 unit
Geometry .....	1 unit
Chemistry .....	1 unit
Physics .....	1 unit

The remaining six units may include any of the following group of elective studies; however, not more than three of these six units may embrace subjects not included in this group but counted by the high school for graduation. Students are strongly recommended to pursue one or more studies throughout the four years of their high school course.

**Group of Elective Subjects**

English Composition, 3 units.	Trigonometry, $\frac{1}{2}$ unit.
English Literature, 1 unit.	Physics, 1 unit.
Greek, 2 or 3 units.	Chemistry, 1 unit.
Latin, 2, 3, or 4 units.	Botany, $\frac{1}{2}$ or 1 unit.
French, 2, 3, or 4 units.	Zoology, $\frac{1}{2}$ or 1 unit.
German, 2, 3, or 4 units.	Physiology, $\frac{1}{2}$ unit.
Spanish, 2, 3, or 4 units.	Geology, $\frac{1}{2}$ unit.
History, 1, 2, or 3 units.	Physiography, $\frac{1}{2}$ or 1 unit.
Algebra, 1, $1\frac{1}{2}$ , or 2 units.	Introductory Science, $\frac{1}{2}$ or 1 unit.
Geometry, 1 or $1\frac{1}{2}$ units.	

High School graduates, who intend to enter college at the beginning of the ensuing year, are urged to request their principals to send in a recommendation for admission for each student immediately after graduation. Standard recommendation blanks to all Schools and Colleges of the University will be supplied upon request. Principals of accredited schools, after filling out the necessary data for this College, should send the recommendations for admission directly to the College of Pharmacy, Ann Arbor, Mich. If, on inspection, the recommendation is found satisfactory, a statement will be forwarded to the applicant entitling him to enroll in this College without examination.

**ADMISSION ON EXAMINATION**

Applicants for admission, who are not entitled to enter on diploma, must take entrance examinations in the entire fifteen units. Any one wishing detailed information concerning the time and method of procedure in taking these examinations should write to Arthur G. Hall, University Registrar.

**ADMISSION TO ADVANCED STANDING**

Students who have gained admission to the college may apply for credit in any of the college studies which they have pursued in another college. Advanced credit is granted for subjects studied in the high school when the student has taken a post-graduate high school course of at least one semester. Applicants are requested to present explicit credentials as to the work done. *Credits from other Colleges of Pharmacy are adjusted separately for each study, as stated above. Owing to differences in the order and extent of the studies, credits cannot usually be counted in years of pharmaceutical college study.* Applicants by correspondence before the opening of college, may have their credentials acted upon for advanced standing.

Credits are received from the other departments, and from the Summer Session, of this University.

One year of residence is required before a degree can be granted.

### **ADMISSION OF STUDENTS NOT CANDIDATES FOR A DEGREE**

Persons over nineteen years of age may be admitted to pursue selected studies under the following conditions: The presentation of satisfactory credentials, showing the completion of the equivalent of eight units of high school work. The eight units must include two units in English and one unit in Algebra.

Students admitted under the above provisions are not, however, regarded as candidates for a degree, and they do not become eligible for graduation until they have passed all the examinations for admission to the College.

Students not candidates for a degree may elect such studies as they are prepared to pursue, under the regulations of the Faculty. Selected studies may be continued as long as, in the judgment of the Faculty, they are carried with success and profit.

### **APPLICANTS FOR ADMISSION**

Applicants arriving in Ann Arbor should call at the office of the Secretary, Room 252, in the Chemistry and Pharmacy Building.

### **REGISTRATION—IMPORTANT**

All students in the College of Pharmacy are required, at the beginning of each year of residence, to enroll with the Dean, to pay their fees to the Treasurer of the University, and to file with the Secretary of the College of Pharmacy an election blank properly filled out, showing the courses they expect to pursue during the semester. These three things shall be considered as constituting Registration in this College.

All students entering the College for the first time must present their credentials to the Secretary of the College of Pharmacy and secure acceptance before enrolling.

### **ELECTION OF STUDIES**

The election blanks of all students must be presented in person to the Secretary of the College of Pharmacy before 5 p. m. of the Monday preceding the opening of the first semester, and before 5 p. m. of the second Saturday preceding the opening of the second semester.

They can be presented after these dates only upon payment of \$5.00.

Elected studies cannot be dropped without the permission of the Dean. No credit is given for courses not properly elected.

Elections may be changed during the first week of each semester.

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**RULES GOVERNING PARTICIPATION IN PUBLIC  
ACTIVITIES**

For the rules governing participation in public activities see page 115.

**COMBINED CURRICULUM IN PHARMACY AND MEDICINE  
B.S. (in Phar.) and M.D.\***

Students desiring to obtain the degrees of Bachelor of Science (in Pharmacy) in the College of Pharmacy, and of Doctor of Medicine in the Medical School, may, by enrolling on the Combined Curriculum in Pharmacy and Medicine, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the University maintain a uniform record of good scholarship.\*\* The work is done under the direction of five members representing the college and school. With the consent of the Committee in charge, a candidate for the degree of Bachelor of Science in Pharmacy who has been a student in the College of Pharmacy for at least one year, and has 96 or more hours to his credit, of which at least 30 hours have been earned in the College of Pharmacy of this University, may enroll upon the combined curriculum; that is while continuing his registration in this college he may also register in the Medical School.

All students who desire to enter upon the Combined Curriculum in Pharmacy and Medicine must, before April 20 of the year preceding double registration, file with the Secretary of the college, upon a blank to be obtained from him, a petition to be granted that privilege.

When a student so registered in the college or school has completed the first two years of the medical curriculum and not less than 96 hours in the College of Pharmacy, he will be recommended for the degree of Bachelor of Science (in Pharmacy) provided he has completed the requirements for graduation from the latter college (see page 578) and provided his work has included the following courses:

Rhetoric, 6 hours, including Courses 1 and 2.

French and German, 16 hours of either one. (Each unit of French or German offered in the preparatory work reduces by four hours the requirement in that language. One year of foreign language, however, must be taken in college).

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\* All students entering upon the Combined Curriculum must satisfy fully the requirements for admission to the College of Pharmacy, including two units of Latin. Otherwise an attendance upon one Summer Session will ordinarily be necessary in addition to the residence herein prescribed.

\*\* The applicant will be expected to have earned at least one and one-third times as many points as hours.

Physics, 8 hours.  
Chemistry, 32 or 28 hours.  
Zoölogy, 4 hours.  
Botany, 4 hours.  
Mathematics, 2 hours.  
Pharmacy, 24 hours.

In order to meet exceptional cases, the Committee shall have power to adjust the foregoing requirements by allowing substantial equivalents.

## COURSES OF INSTRUCTION

The courses of instruction comprise lectures, recitations, and laboratory work. The amount of work in each course is expressed in hours, an *hour* signifying one exercise a week during one semester. A lecture or recitation is usually one hour in length. A laboratory exercise occupies approximately three or four hours, being continued until the work assigned to one exercise, or a due proportion of work assigned to the course, has been completed. The satisfactory completion of one exercise a week during one semester, including a sufficient standing in the examination held at the end of the semester, entitles the student to *one hour of credit* toward graduation. It is expected that a lecture or a recitation, with the personal study necessary to maintain the student's standing in the subject, will take in all as much as a laboratory course. Therefore, an *hour of credit* is regarded as having the same value whether obtained in a course of lectures or in a course of laboratory exercises.

The amount of credit toward graduation is indicated by the expressions: *two hours, three hours, etc.*

### BACTERIOLOGY

2. Bacteriology. Lectures. *Five hours credit* Second semester. Medical Amphitheatre. Professor NOVY.
- 3L. Bacteriology. *Three hours credit*. First semester. Laboratory work, for eight weeks.  
Sec. I, Oct.-Nov.; Sec. II, Dec.-Jan. Professor NOVY and Assistant Professor HADLEY.  
This course must be preceded by a course in organic chemistry.

### BOTANY

1. Elements of Botany. *Four hours credit*. One lecture, two recitations, and six hours laboratory work each week. Assistant Professor TUPPER and others.

NOTE.—Additional courses in Botany are given in the announcement of the College of Literature, Science, and the Arts.

**CHEMISTRY**

1. General and Inorganic Chemistry. *Four hours credit.* Deposit, \$5. Two lectures, two recitations, and two laboratory periods of two hours each. Professor BIGELOW, Mr. TRIMBLE, and assistants.
2. General and Inorganic Chemistry. Continuation of Course 1, the hours and credits being the same in both semesters. Deposit, \$5. Professor SMEATON, Mr. TRIMBLE, and assistants.
3. Qualitative Analysis. *Five hours credit.* Deposit, \$10. First or second semester. Three lectures and two laboratory periods of four hours each. Assistant Professors MCALPINE and CARNEY.
5. Quantitative Analysis. Lectures, recitations, and laboratory. *Five hours credit.* First or second semester. Professor WILLARD, and Assistant Professor MELOCHE.
7. Organic Chemistry. Lectures, recitations, and laboratory. *Five hours credit.* Either semester. Professor GOMBERG and Dr. BLICKE.  
Those electing Course 7 should elect 7a the following semester, as they constitute one course extending throughout the year.
- 7a. Organic Chemistry. Continuation of Course 7. Lectures, recitations, and laboratory. *Five hours credit.* Either semester. Professor GOMBERG and Dr. SNOW.
8. Elementary Theoretical and Physical Chemistry. Lectures, recitations and laboratory. *Four hours credit.* Second semester. Professor BIGELOW.  
This course must be preceded by Course 3 or 3b and Physics 2.
10. Organic Chemistry. Lectures and recitations. *Four hours credit.* First and second semester. Assistant Professor SCHOEPPLE, and Dr. BLICKE.
13. Physical-Chemical Measurements. Laboratory work. *Three to eight hours credit.* Either first or second semester. Professor BARTELL.
15. History of Chemistry and Development of Chemical Theory. Lectures and seminary. *Two hours credit.* Either first or second semester. Professor SMEATON.
42. Organic Chemistry. Laboratory work in organic synthesis. *Two hours credit.* Either first or second semester. Dr. SNOW.
- 44a. Analysis of Foods, Drugs, etc. Lectures, recitations, and laboratory. *Three or five hours credit.* This course must be preceded by Courses 5 and 7. Mr. MCGILL.

- 44b. Analysis of Foods, Drugs, etc. Continuation of Course 44a. *Three or five hours credit.* Second semester. Mr. MCGILL.

NOTE.—A more complete list of courses in Chemistry which are open to students of the College of Pharmacy may be found in the announcement of the College of Literature, Science, and the Arts.

#### SUMMER SESSION OF 1924

- 44s. Food and Drug Analysis. *Three or five hours credit.* Mr. WAGENER.

#### ECONOMICS

1. Principles of Economics, I. *Three hours credit.* Professor TAYLOR, Dr. C. H. MAY, and Messrs. WYNGAARDEN, OPPENHEIM, KNIGHT, SMITH, MEIKLEJOHN, LEWIS, THRUN, BIGGE, and CRAMER.

The immediate administration of this course will be in charge of Dr. C. H. MAY, who will have consultation hours in Room 206, Ec.

2. Principles of Economics, II. *Three hours credit.* Professor TAYLOR and others.

This course is a continuation of Course 1, by which it must be preceded.

9. Money and Banking. *Three hours credit.* Mr. RODKEY, and Mr. BRADFORD.

38. Principles of Accounting, I. *Four hours credit.* Professor PATON and others.

39. Principles of Accounting, II. *Four hours credit.* Professor PATON and others.

This is a continuation of Course 38.

46. Business Law, I. Lectures, reading, and discussion of selected cases. *Three hours credit.* Mr. WOLAVER.

47. Business Law, II. Lectures, reading, and discussion of selected cases. *Three hours credit.* Mr. WOLAVER.

#### ENGLISH

1. Theme-writing and Oral Exposition. *Four hours credit.* See the *Engineering Announcement* for number of sections and instructors.

#### FRENCH

1. Beginning Course. Grammar and easy reading, with practice in speaking. *Four hours credit.*
2. Elementary French. Continuation of Course 1. *Four hours credit.*

### GERMAN

1. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. *Four hours credit.*
2. Elementary Course. Pronunciation, grammar, easy readings, with practice in speaking and writing German. *Four hours credit.*

### HYGIENE

1. General Hygiene. Lectures. *Three hours credit.* Second semester. Professor SUNDWALL.

### MATHEMATICS

1. Algebra and Trigonometry. *Four hours credit.* Second semester.  
All elections of this course, whether made by first-year students or by upper classmen, must be made through the Classification Committee for first-year students in the College of Literature, science, and the Arts.

### MINERALOGY

1. Elements of Mineralogy. Lectures and laboratory. *Two hours credit.* The course the first semester is arranged especially for pharmacy students. Professor KRAUS, and assistants.  
Course 1 should be preceded by a course in general chemistry.

### PHARMACOGNOSY

1. Microscopy of Foods, Drugs, Spices, etc. Lectures and laboratory. *Four hours credit.* First semester. Professor GLOVER.
2. Study of Crude and Powdered Drugs. Lectures and quizzes. *Five hours credit.* Second semester. Professor GLOVER and Mr. WAGENER.

### PHARMACOLOGY

1. Materia Medica and Therapeutics. Lectures and recitations. *Four hours credit.* Second semester. Assistant Professor NELSON.
2. Physiological Assay of Drugs. Professor EDMUNDS.

### PHARMACY

1. Pharmaceutical and Chemical Calculations. Lectures and recitations. *Four hours credit.* First semester. Assistant Professor STOCKING.
2. Commercial Pharmacy. Lectures and recitations. *Two hours credit.* First semester. Assistant Professor STOCKING.



3. Drug Assaying and Pharmacopœial Testing. Lectures, recitations, and laboratory. *Three hours credit.* Second semester. Mr. MCGILL.
  4. Pharmaceutical Chemistry. Lectures and recitations. *Three hours credit.* First semester. Mr. MCGILL.
  5. Prescription Study and Practice, including Incompatibilities. *Three hours credit.* Lectures and recitations. First semester. Assistant Professor STOCKING and Mr. WAGENER.
  - 5a. Prescription Study and Practice, including Incompatibilities. *Three hours credit.* Assistant Professor STOCKING and Mr. WAGENER.
- Courses 5 and 5a include assigned periods in the University Health Service Pharmacy and the University Hospital Pharmacy.
6. Study of the United States Pharmacopœia and the National Formulary. Lectures and recitations. *Four hours credit.* Second semester. Professor GLOVER.
  7. Pharmaceutical Technic and Manufacturing Pharmacy. *Four hours credit.* Second semester. Assistant Professor STOCKING.
  - 7a. Pharmaceutical Technic and Manufacturing Pharmacy. *Four hours credit.* First semester. Assistant Professor STOCKING.
  19. Original Investigation. Both semesters. Either laboratory or library work. *Four hours credit.* May be elected under any member of the Faculty.
  20. History of Pharmacy. First semester. Lectures once weekly at hour to be arranged. Mr. WAGENER.

#### SUMMER SESSION OF 1924

15. Pharmaceutical and Chemical Calculations. *Four hours credit.* Assistant Professor STOCKING.
35. Pharmacopœial Testing and Drug Assaying. Mr. WAGENER.
75. Manufacturing Pharmacy. *Four or seven hours credit.* Assistant Professor STOCKING.

#### PHYSIOLOGICAL CHEMISTRY

8. Physiological Chemistry. Lectures and recitations. *Three hours credit.* First semester. Professor LEWIS.
9. Physiological Chemistry. *Three hours credit.* Laboratory work. Professor LEWIS.

### PHYSICS

1. General Physics. Mechanics, Sound, and Heat. *Four hours credit.* Lectures, recitations, and laboratory work. Professor RANDALL and assistants.
2. General Physics. Magnetism, Electricity, and Light. *Four hours credit.* Lectures, recitations, and laboratory work. Instructors the same as in Course 1.  
Course 2 must be preceded by Course 1 and by a course in general chemistry.

### SUMMER SESSION

Many of the required courses outlined above may be pursued during the Summer Session of the University. Thus, Courses 1, 3, and 7 in Pharmacy will be given during the Summer Session of 1924. For summer instruction in other departments, consult their announcements, or the special bulletins of the Summer Session

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### EXAMINATIONS

The examination upon each course of instruction is held at the end of each semester, in February and in June.

The result of an examination is reported by the Professor in charge, for each student enrolled, to the Faculty, in terms as follows:

A (excellent), B (good), C (satisfactory), D (deficient), E (not passed), I (incomplete), X (absent from final examination).

To receive credit in a course the grade reported must be above D. A student reported E (not passed), receives no credit for the course and must re-elect it the first opportunity if the course is required for his graduation.

A student reported D (deficient) is required to do further work in the course. This may, at the option of the instructor, embrace any or all of the following requirements: the completion of set exercises or problems, attendance at designated classes and private study, or the completion of a satisfactory examination at one of the regular examination periods.

When a student has been prevented by illness or other cause beyond his control from completing any course, the mark I (incomplete), may be placed before the grade to denote that fact. This mark must be removed at the earliest opportunity or it becomes grade E (not passed).

Any student absent from examination is required to report to his instructor as soon thereafter as possible. If the student presents a valid excuse for his absence, his instructor shall permit him to take the examination at one of the regular periods. If the excuse is deemed unsatisfactory, the record shall be reported as D or E. If,

by the end of the semester following the examination, no report showing a satisfactory completion of the course is received at the office, the record in the course shall be changed to E.

## SEQUENCE OF STUDIES

### THREE-YEAR CURRICULUM

#### Leading to the Degree of Pharmaceutical Chemist

This curriculum is intended primarily for the training of retail pharmacists. A minimum of 94 hours is required for graduation as follows:

FIRST SEMESTER			SECOND SEMESTER		
Subject	Course	Hours Credit	Subject	Course	Hours Credit
Chemistry	1	4	Chemistry	2	4
English	1	4	Pharmacy	7	4
Pharmacy	1	4	Hygiene	1	3
Botany	1	4	Pharmacy	2	2
			*Elective		
<b>Second Year</b>					
Mineralogy	1	2	Chemistry	10	4
Chemistry	3	5	Chemistry	42	2
Economics	1	3	Economics	2	3
Pharmacy	7a	4	Pharmacognosy	2	5
*Elective			Chemistry	44	2
<b>Third Year</b>					
Pharmacy	5	3	Pharmacy	5a	3
Pharmacy	4	3	Pharmacology	1	4
Pharmacognosy	1a	2	Pharmacy	6	4
Chemistry	5	5	Pharmacy	3	2
Pharmacy	20	1	Bacteriology	2	5

## FOUR-YEAR CURRICULA

#### Leading to the Degree of Bachelor of Science (in Pharmacy)

A minimum of 125 hours is required for graduation as follows:

\* Suggested electives are found under (A), (B), (C) of the four-year curricula.

## Basic Courses required of all Students.

First Year					
FIRST SEMESTER			SECOND SEMESTER		
Subject	Course	Hours Credit	Subject	Course	Hours Credit
Chemistry	1	4	Chemistry	2	4
Pharmacy	1	4	Pharmacy	7	4
English	1	4	Mathematics	1	4
German or French	1	4	German or French	2	4
		<hr/> 16			<hr/> 16
Second Year					
Chemistry	3	5	Chemistry	5	5
Mineralogy	1	2	Hygiene	1	3
Physics	1	4	Physics	2	4
Pharmacy	7 <sup>a</sup>	4	Botany	1	4
		<hr/> 15			<hr/> 16

At this time each student should decide upon one of the following groups of study which have been outlined with careful consideration for the needs of each field of specialization.

## Group A

FOR THE STUDENT PREPARING FOR GENERAL, ANALYTICAL, OR  
MANUFACTURING PHARMACY.

(a) Required Courses—116 hours; electives, 9 hours.

Third Year					
FIRST SEMESTER			SECOND SEMESTER		
Subject	Course	Hours Credit	Subject	Course	Hours Credit
Chemistry	7	5	Chemistry	7 <sup>a</sup>	5
Pharmacy	5	3	Bacteriology	2	5
Pharmacognosy	1	4	Pharmacognosy	2	5
Elective			Pharmacy	3	2
Fourth Year					
Chemistry	44 <sup>a</sup>	3	Pharmacology	1	4
Bacteriology	3L	3	Pharmacy	6	4
Pharmacy	4	3	*Chemistry	8	4
Pharmacy	20	1	Chemistry	44	2
Elective			Elective		

## (b) Suggested Elective Courses:

Chemistry	44b	2-5
Technical		
Microscopy	2a	2-5
Pharmacy	19	4
Chemistry	13	3-8
*Chemistry	8e	3
Physics	3	2

**Group B**

FOR THE STUDENT PREPARING FOR THE DUTIES OF LABORATORY  
OR CLINICAL TECHNICIAN.

(a) Required Courses—113 hours; Electives, 12 hours.

**Third Year**

FIRST SEMESTER			SECOND SEMESTER		
Subject	Course	Hours Credit	Subject	Course	Hours Credit
Chemistry	7	5	Chemistry	7a	5
Pharmacy	5	3	Physiological		
Chemistry	8e	3	Chem. Lab.	9	3
Elective			Bacteriology	2	5
			Pharmacognosy	2	5

**Fourth Year**

Bacteriology	3a	3	Pharmacology	1	4
Pharmacy	4	3	Pharmacy	6	4
Physiological			Laboratory		
Chemistry	8	3	Diagnosis		3
Pharmacy	20	1	Elective		
Elective					

## (b) Suggested Elective Courses:

Water Analysis		3
Histology		8
Pathology		3-4
Pathology tec. S.S.		3
Chemistry	13	3-5
Bacteriology	4	3
Bacteriology	4a	3

\* Chemistry 8e may be elected the first semester in place of Chemistry 8 the second semester.

**Group C**

FOR THE STUDENT PREPARING FOR PHARMACEUTICAL ADMINISTRATION.

(a) Required Courses—123 hours; Electives, 2 hours.

**Third Year**

FIRST SEMESTER			SECOND SEMESTER		
Subject	Course	Hours Credit	Subject	Course	Hours Credit
Chemistry	7	5	Chemistry	7 <sup>a</sup>	5
Pharmacy	5	3	Pharmacy	5 <sup>a</sup>	3
Economics	1	3	Economics	2	3
Accounting	38	4	Pharmacognosy	2	5
Pharmacy	20	1	Pharmacy	2	2

**Fourth Year**

Bacteriology	3 <sup>a</sup>	3	Bacteriology	2	5
Pharmacy	4	3	Pharmacology	1	4
Economics	46	3	Chemistry	8	4
Elective			Pharmacy	6	4

(b) Suggested Elective Courses:

Economics	47	3
Economics	38	4
Economics	9	3
Economics	15	3

**GRADUATE COURSES****In Pharmacology, Bacteriology, and Physiological Chemistry**

Graduates of the College are given opportunity to pursue advanced work in these studies. See page 525 and 533 for courses in Bacteriology and Physiological Chemistry, and page 532 for courses in Pharmacology, which are recommended to graduate students.

**For the Degree of Master of Science and Doctor of Philosophy**

Advanced courses of study are offered in the several branches taught in the College, suitable for graduates who wish to earn the degree of Master of Science, or Doctor of Philosophy, as explained in the chapter on the Graduate School.

## FELLOWSHIPS AND PRIZES

### FREDERICK STEARNS AND COMPANY RESEARCH FELLOWSHIP

In order to promote research in pharmacy Frederick Stearns and Company of Detroit have contributed the sum of five hundred dollars for a fellowship. The holder of this fellowship for 1923-1924 is Theodore Fredrick Thorsberg.

### CHARLES RALPH ECKLER PRIZE

Mr. Charles Ralph Eckler, Ph.C., '02; B.S. (Pharm.) '15; M.S. '15, Pharmacologist with Eli Lilly and Co., Indianapolis, Indiana, offers to the student making the best set of drawings in Pharmacognosy I, a set of over one hundred and seventy crude drugs, in separate boxes, contained in a large cabinet. Each box is labeled with the correct Latin title, common name, and habitat. This prize is very valuable to the student of Pharmacy and especially in the study of Pharmacognosy.

This prize was awarded to Edward Joseph Vennard in 1923.

### THE RHO CHI PRIZE

The Rho Chi Society, formerly known as the Aristolochite Society, of the College of Pharmacy, awards annually a prize of \$10.00 to the first-year student of the College who has made the best scholastic record, based upon the results of the first semester and a competitive examination held in May. The prize was awarded in 1923 to Harold Ross Bowers.

### THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild, of New York City, offers a scholarship annually amounting to \$300.00 in cash, to the high school graduates of the United States who wish to follow pharmacy as a vocation. Competitors for this scholarship must have had a four-year high school course, must have had two years practical experience in pharmacy, and must take an examination in elementary chemistry, elementary materia medica, practical pharmacy and prescription reading, and elementary business knowledge. The examinations will be held annually at the University on the second Monday in June.

### THE LEHN AND FINK MEDAL

Through the generosity of Lehn and Fink of New York City a number of Colleges of Pharmacy have been authorized to award a gold medal to the senior student having the highest scholarship.

## BOTANICAL GARDEN

In coöperation with the Botanical Garden of the University, there is a fairly extensive garden of the important medicinal plants.

Most of the common drug species are now under cultivation and it is planned to add continually to the number of rarer specimens which will be available to the student for study and research.

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## LIBRARY, BOOKS OF REFERENCE, AND TEXT-BOOKS

The College has an extensive library, which is shelved with the Chemical Library of the University, in the Chemistry and Pharmacy building. It contains complete sets of the journals, the original repositories of the sciences related to pharmacy, as well as the current periodicals of the profession, encyclopedias and hand-books of chemistry and pharmacy, and the latest works of value in study. These books are in constant use by students in connection with their laboratory work, and in preparing for their recitations. Files of current numbers of the journals of chemistry and of pharmacy are also kept in the reading room.

The text-books used can be obtained in the book stores in this university city at lower rates than those prevailing in the general trade of other cities. Since changes are likely to be made in the texts used from year to year it is not desirable to print a tentative list. The texts required in the several courses are announced by the teacher in charge at the first meeting of the class.

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## FEES AND EXPENSES

*The Matriculation Fee and the Annual Fee must be paid in advance, and no student can enter upon his work until after such payment. For the rules governing the refunding of fees and the fees for the second semester, see page 136.*

**MATRICULATION FEE.**—For Michigan students, \$10; for all others, \$25.

**ANNUAL FEE.**—For Michigan students, \$100 for men; \$95 for women; for all others, \$125 for men, \$120 for women.

**GRADUATION FEE.**—For all alike, \$10.



**LABORATORY EXPENSES.**—No laboratory fees are charged. In the laboratory of chemistry a deposit is required to cover the cost of material and unusual breakage. The expense varies with the prudence and economy of the student, the average amount being about five dollars. Where the laboratory deposit is indicated as \$10 it should be understood that the cost of non-returnable articles is slightly over five dollars and that a refund will be granted each student at the end of the course.

For additional information in regard to fees and expenses, see page 138.

# College of Dental Surgery

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*A Special Announcement giving further information in regard to this College is published annually. For copies of this Announcement, or for other information relating to the College, address, The College of Dental Surgery, Ann Arbor, Michigan.*

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The College of Dental Surgery was established as a Department of the University in 1875. The college year extends from Tuesday, September 23, 1924, to Monday, June 15, 1925. Lectures close about June 1 in order to allow for the final examinations before Commencement.

Four years of study are required for the dental degree.

This College is on the approved list of colleges of the Dental Educational Council of America, which insures the standing of its graduates before all State Examining Boards. The College is also a member of the American Association of Dental Schools.

The requirements for admission to the College of Literature, Science, and the Arts are stated on page 139.

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## REQUIREMENTS FOR ADMISSION

An applicant for admission to the College of Dental Surgery must present a certificate of graduation and recommendation from an accredited high school, academy, state normal college, or like institution that is accredited to the College of Literature, Science, and the Arts of the University of Michigan; and evidence of having completed one year's work (thirty semester hours) in an approved college or university subsequent to graduation at an institution such as has been referred to. The courses of study in high school and college must be as follows:

### HIGH SCHOOL

English, 3 units required, 4 allowed.  
Mathematics, 2 units required, 3 allowed.  
Physics, 1 unit required.  
Chemistry, 1 unit required.

Latin, 2 units required, 3 allowed.

Plane Trigonometry,  $\frac{1}{2}$  unit required, 1 allowed.

Electives, 5 units, to be made up from the following subjects:

History,

Botany,

Zoölogy,

Physical Geography,

Modern Language,

Mechanical and Free-Hand Drawing.

### COLLEGE

English, 6 hours required, 8 allowed.

Zoölogy, 4 hours required, 6 allowed.

Botany, 4 hours required.

General Chemistry, 8 hours required.

Electives, 8 hours from the following subjects:

Foreign Language,

Mathematics,

History,

Geology.

All applicants for admission from other dental or medical colleges or other educational institutions must meet the foregoing specific requirements. All applicants who hold the degree A.B., B.S., A.M., Ph.D., M.D., etc., must also meet these specific requirements.

### SCOPE OF PRELIMINARY WORK

If all of the specified high school subjects have not been included in the applicant's high school course, the deficiency may be made up in college. The work in English should consist of the regular courses in English Composition and Literature.

The work in chemistry should consist of eight hours of general inorganic chemistry with the usual amount of laboratory work, but if the applicant presents credit for six hours from an institution of good standing which operates on a quarterly basis, instead of on the semester basis, or from one which for some other reason offers only six hours of general inorganic chemistry, he may be admitted to the College of Dental Surgery with the understanding that additional work in this subject must be taken during the summer session following the first year in the College of Dental Surgery. In no case may an applicant begin work in the College of Dental Surgery with less than six hours of chemistry and be eligible for the licensing board examinations which are required for a license to practice.

The work in biology should consist of four hours each of zoölogy and of botany with the usual amount of laboratory work. If, however, an applicant presents credit for six hours of biology on

account of the same reasons as stated in the preceding paragraph, he may be admitted to the College of Dental Surgery with the understanding that this work must be supplemented by further work in this subject during the summer session following the first year in the College of Dental Surgery. In no case may an applicant be enrolled in the College of Dental Surgery with less than six hours of biology and be eligible for the licensing board examinations required for a license to practice.

In choosing subjects from the list of electives from which to make the eight hours required for admission the applicant is advised to take language and mathematics, four hours of each.

### **COMBINED CURRICULUM IN LETTERS AND DENTAL SURGERY**

Students desiring to obtain the degrees of Bachelor of Arts in the College of Literature, Science, and the Arts, and of Doctor of Dental Surgery in the College of Dental Surgery, may, by enrolling on the Combined Curriculum in Letters and Dental Surgery, shorten from eight years to seven the time required to earn the two degrees. This privilege is open only to students who throughout their residence in the University maintain a uniform record of good† scholarship. The work is under the direction of a Committee of five members representing the two colleges. With the consent of the committee in charge, a candidate for the degree of Bachelor of Arts, who has been a student in the College of Literature, Science, and the Arts, for at least a year, and has 90 or more hours of credit, of which at least 30 hours have been earned in the College of Literature, Science, and the Arts of this University, may enroll upon the combined course; that is, while continuing his registration in this college he may also register in the College of Dental Surgery, provided the work he has already completed contains a sufficient number of the courses enumerated below to enable him to complete within one year the specific requirements described in the following paragraphs.

Students who desire to enter upon the Combined Curriculum in Letters and Dental Surgery must, before April 20 of the year, preceding double registration, file with the Registrar, on a blank to be obtained from him, a petition to be granted the privilege.

When the student so registered in the two colleges has completed the first year of the dental curriculum, and not less than 90 hours in the College of Literature, Science, and the Arts, he will be recommended for the degree of Bachelor of Arts, provided he has completed the requirements for graduation from the latter college (see page 150), and provided his work has included the following courses, and satisfied the group requirements:

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† The applicant will be expected to have earned at least one and one-third times as many points as hours.

Rhetoric, 6 hours, including Courses 1 and 2.

French and German, 16 hours of either one. (Each unit of French or German offered in the preparatory work reduces by 4 hours the requirement in that language. One year of foreign language must, however, be taken in College.)

English, 6 hours.

History, 8 hours.

Electives from Group III, 4 hours.

Chemistry, general, qualitative, and organic, 8 hours for students presenting Chemistry for entrance, otherwise 12 hours.

Zoölogy, 6 hours.

Botany, 4 hours.

Total, 90 hours.

Suggested electives: Latin or Greek, 8 hours; Philosophy, 3 hours; Physical Chemistry, 3 hours.

### **ADMISSION TO ADVANCED STANDING**

Graduates in medicine, or those students who have completed two or more years of the curriculum of a class A Medical school, may be given advanced standing of one year and admitted to second year classification in the College of Dental Surgery. They must, however, take, under competent regular instruction, all courses in dental technology and other subjects in the first year of the dental curriculum which they have not had, and may be given credit in subjects of the second year of the dental curriculum for corresponding medical school courses that are fairly equivalent, in such amount as to permit them to make up the first year courses in technics. Advanced standing for those who have completed two or more years of the medical curriculum will not be given if the interval between leaving the medical school and entering the dental school exceeds three years, but this restriction does not apply to graduates of medicine.

Applicants for enrollment who present credits for the subjects of physics and organic chemistry from well recognized colleges of Literature, Science, and the Arts, will be given subject credit only.

Graduates from other dental colleges, either in this or in foreign countries, which maintain the same standards for admission and which have a curriculum of study equivalent to the one maintained in this College, who wish to have the degree of Doctor of Dental Surgery conferred upon them by the University of Michigan will be required to matriculate and enroll in the regular way for a minimum period of one year.

## COURSES OF INSTRUCTION

The curriculum covers four college years of nine months each. The first year is occupied with the study of the fundamental and preparatory subjects which lead the way to a clearer conception of the strictly dental problems. In view of the recognized importance of dentistry and dental operations to the general health, and its relation to general medical practice, dentistry must be taught in its relation to general medicine. There has been included in the curriculum, therefore, as much underlying ancillary and medical education as it is possible to give in the preparation for the special dental subjects.

### SCHEDULE OF SUBJECTS AND HOURS\*

First Year			
FIRST SEMESTER		SECOND SEMESTER	
	Class	Lab.	
Physics I	34	68	
Mineralogy	34	34	
Drawing		68	
Organic Chemistry	68		Histology and Embryology
Shop Practice		153	Anatomy
	136	323	
			60 120
			60 240
			60 360
Second Year			
Physics II	34	68	Physiology
Histology (special)	17		Heredity
Bacteriology	40	160	Comparative Anatomy
Physiological Chemistry	51		Metallurgy
Organic Evolution	34		Dental Anatomy and Technics
Dental Anatomy		306	
	176	534	
			80 32
			32 32
			16 464
			160 464
Third Year			
Pathology (general)	68	160	Operative Dentistry
Oral Hygiene	34		Pathology (special)
General Hygiene	51		Crown and Bridge
Technics		350	Therapeutics
	153	510	Technics
			32 480
			128 512

\* The columns of figures show the total number of hours required for each course of study.

**Fourth Year**

FIRST SEMESTER			SECOND SEMESTER		
	<i>Class</i>	<i>Lab.</i>		<i>Class</i>	<i>Lab.</i>
Oral Surgery I	17		Oral Surgery I	16	
Oral Surgery II	34	17	Oral Surgery II	32	16
Clinical Pathology	17		Clinical Pathology	16	
Therapeutics	17		Metallurgy	16	
Crown and Bridge	34		Therapeutics	16	
Orthodontia	17		Ethics, Economics,		
Metallurgy	17		Medical Jurispru-		
Operative Dentistry	17		dence	32	
Clinic		561	Operative Dentistry	16	
			Clinic		544
	170	578		144	560

**DESCRIPTION OF COURSES****Physics, Zoology, and Chemistry**

These subjects are given in the several departments of Physics, Zoölogy, and Chemistry of the University. They are taught in the laboratories and under the personal direction of the teachers of the respective departments.

**Anatomy, Embryology, Histology, Physiology, Bacteriology, and Pathology**

These subjects are given in the Medical School. They are taught in the form of lectures and laboratory instruction by members of the medical faculty. Especial attention, however, is given in Anatomy and Histology to the head and neck region. All other tissues and organs of the body are studied somewhat less intensively. These two courses are supplemented by instruction in the Dental College in comparative dental anatomy and special histology and pathology. The Odontological Museum, the gift of the late Professor Ford, which has been greatly increased by a contribution from Dr. William Mitchell, of London, England, offers exceptional opportunities for this work.

**Materia Medica and Therapeutics**

In dental materia medica and therapeutics a special course of lectures embraces the history, pharmacy, pharmacology, and therapeutics of all drugs and remedies used in the treatment of diseases occurring in dental practice. The course also includes a discussion of pain obtundents, local and general anæsthetics, prophylactic remedies, and instruction in roentgenology.

### **Oral Surgery**

Two courses of lectures on clinical dental and oral surgery embrace a consideration of diseases of the teeth and mouth and associated parts that are of special interest to the dentist, as well as those that lie more within the province of the general surgeon for treatment. Illustrative cases are exhibited and discussed, and operations are performed before the class in the Dental and University Hospital clinics each week, and in the Dental clinic each afternoon.

### **Operative Dentistry**

In operative dentistry the instruction is both didactic and practical. In the didactic course, which is preceded by a course in operative technics, a full presentation of approved methods, appliances, and materials used in filling teeth is given, together with the principles which form the basis of practice. The instruction is supplemented by practical instruction in the clinical operating room, which is under the personal supervision of the professors of operative and clinical dentistry and their assistants. Here, each third and fourth-year student is required to spend twenty hours each week at the chair, operating for patients, and in this way verifying the principles taught and obtaining such manipulative training as will result in desirable preparation for skillful practice.

### **Prosthetic Dentistry**

In prosthetic dentistry the instruction is both didactic and practical. In the lectures, the principles involved in the construction and application of artificial dentures, crowns and bridges regulating devices, and continuous-gum and cleft palate work are fully discussed, and such methods as have proved valuable and worthy are advocated. In the practical department each student in the second and third years has opportunity and is required to construct and adapt to the mouth practical dentures for the restoration of lost dental organs.

The instruction in prosthetic technics embraces experimental construction of the various artificial dentures used to restore lost dental organs. It consists in taking impressions, making plaster models from impressions, making dies, swedging plates, and grinding and adjusting teeth, soldering and finishing, vulcanizing and finishing plates, pouring and finishing cast metal plates, and constructing various styles of crowns, bridges, and regulating devices, with such instruction as will familiarize the student with the most approved methods of doing such work.

### **EXAMINATIONS**

At the end of each semester examinations are held on all subjects taught during the semester, and the results are recorded in terms of the following grades: A, excellent; B, good; C, fair or satis-



factory; D, deficient; E, not passed. Students receiving a grade of D in any course must remove the conditions during the semester following the one in which it was received. No student who, at the end of a year, has failed to pass in two or the required subjects of his course is admitted to an advanced class during the first semester of the following year.

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## **REQUIREMENTS FOR GRADUATION**

The degree of Doctor of Dental Surgery is conferred upon those students in the College of Dental Surgery who have complied with the requirements for admission, possess a good moral character, have devoted four years to the study of dentistry, and have passed with satisfactory grades all the courses of the curriculum given on page 589.

Unless admitted to advanced standing, the candidate for this degree must have attended four full years in this College, and he is advised to attend them consecutively.

## **ELECTIVE STUDIES**

By permission of the Faculty, students may avail themselves of numerous lectures in other departments, or elect studies in the College of Literature, Science, and the Arts; or may attend special lectures in the Medical School, on such subjects as are of importance to the practicing dentist, without extra fees, except where laboratory courses are taken.

## **CURRICULUM IN TRAINING FOR DENTAL HYGIENISTS**

Beginning with the year 1921-1922 a curriculum has been offered in the College of Dental Surgery for the training of dental hygienists. The purpose of the curriculum is to prepare young men or women to practice dental hygiene under the conditions specified in the laws of many states. In general they are legalized to perform certain oral hygienic measures such as removing calcarious deposits, accretions, and stains from the exposed surfaces of teeth, and may prescribe or apply ordinary mouth washes of soothing character. They may operate in the office of a legally licensed dentist, in any state or municipal institution or in public schools or under a board of health, but only when supervised by a licensed dentist.

Candidates for admission to this program must be graduates of a four year accredited high school or an equivalent acceptable for admission to the College of Literature, Science and the Arts of the University.

The length of the curriculum is one academic year beginning in September and ending the following June. Students cannot be admitted at any time other than the beginning of the regular term.

The course of study during the first semester includes the subjects of anatomy, histology, chemistry, special dental anatomy, general hygiene, oral hygiene, preventive dentistry, and clinical practice. During the second semester the subjects are pathology, materia medica, therapeutics, principles of nursing, roentgenographic technic, sociology, clinical practice, and training in general office assistance, (model making, investment and casting of inlays, sterilization and care of instruments, etc.).

The work is at present in charge of Instructor Hertha C. Hartwig, D.D.S., and the teaching is largely given by members of the faculty of the Dental College. The clinical practice is given in the general operative clinic of the College and in the public schools of Ann Arbor.

At the completion of the course a certificate of graduation in the Curriculum of Dental Hygiene is given.

Graduates of accredited schools of training for medical nurses may complete this course in one half year provided that the applicant registers in September of any year and takes the full work of the first semester.

The fees for the curriculum for dental hygienists are a matriculation fee of *ten dollars* for Michigan students and *twenty-five dollars* for all others, an annual fee of *one hundred dollars* to all alike, and a graduation fee of *two dollars*. The annual fee for a trained nurse graduating in one semester is *sixty dollars*.

Those wishing further particulars concerning the course or desiring to enroll should consult the Dean of the College of Dental Surgery, University of Michigan.

### GRADUATE COURSES\*

The Graduate School of the University of Michigan offers to graduates of the four year course in dentistry, the opportunity to do advanced work along certain specified lines in preparation for a degree of Master of Science. Only those graduates are admitted who have had sufficiently good records during their term of collegiate work to warrant the supposition that they could creditably carry the advanced studies. It is expected that all work done by a graduate student will be of a superior grade. Students whose work has been unsatisfactory will be requested to withdraw from the school.

A student may be recommended for the master's degree (M.S.) after one year of resident study in the Graduate School providing that the year has been spent in taking full work in studies of graduate grade. No student can acquire a right to such recommendation merely by a formal compliance with this rule.

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\* See the chapter on the Graduate School.

After a student has been admitted to study for the master's degree, the teaching staffs of the departments concerned will outline such work as will be required for the master's degree. This outline must be approved by the Dean of the Graduate School and no student will receive the degree until the requirement has been fulfilled. Further information in regard to graduate work may be obtained by application to the Dean of the Graduate School, University of Michigan, and in the Announcement of the schedule and curriculum of that school, which will be sent upon application.

### **SUMMER SESSION**

The College of Dental Surgery offers during the Summer Session those parts of the regular curriculum in dentistry which are taught in the College of Literature, Science, and the Arts, and in the Medical School. (See the chapter on the Summer Session.)

All students desiring to pursue during the Summer Session courses which are to be recognized by this College, should first consult with the Dean of the College of Dental Surgery.

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### **FACILITIES FOR INSTRUCTION**

For general information relating to the University libraries, museums, laboratories, hospitals, and gymnasiums, see pages 69 to 87 and 539 to 544.

Among the facilities of special interest to students of dentistry the following may be mentioned:

#### **THE DENTAL BUILDING**

The College of Dental Surgery is housed in the three-story fire-proof building 114 by 166 feet. It contains such facilities as are not elsewhere in existence in the University for dental education, all the fundamental science work being taught in the central units maintained for the respective subjects. It consists chiefly of two lecture rooms, a clinic, two technic laboratories, private rooms for all teachers, a library and museum, and locker rooms.

The lecture rooms are well lighted, well arranged for class work, and contain all necessary equipment for the efficient teaching of the various subjects in the curriculum.

The clinic room is 70 by 164 feet in size, provided with large skylights, with windows extending almost the entire height of the room, has a north exposure, unobstructed by buildings, trees, or anything which would interfere with lighting the room. It is supplied with modern equipment and constitutes one of the best rooms of its kind. Ample clinical material is provided by the inhabitants of this

and nearby large cities and students in attendance at the University. A close supervision of the work by competent teachers who are always present when the clinic is in operation has resulted in the attraction of a very desirable class of people to this clinic. This makes it possible to carry out the very highest grade of clinical instruction and to develop students to the highest state of proficiency. The clinic has five main divisions, as follows: operative, surgical, roentgenographic, crown and bridge, and prosthetic, each of which has adequate facilities for high grade instruction.

Each senior student is assigned to a chair which he retains throughout the year and maintains as he would his own office.

A large number of patients also come from the surrounding towns and even from some distance in the state, remaining in the city to receive dental services at the clinic. The character of the patients thus attracted is above the average patrons of free dental clinics. They desire the best dental service and are splendid subjects for teaching the highest type of dental practice.

Radiographic and surgical clinics are in operation each day, to which a large number of patients are referred by practitioners of the city and surrounding towns. Patients for these clinics also come from all parts of Michigan and other nearby states.

#### **FORD-MITCHELL MUSEUM**

The dental museum is supplied with a large number of anatomical, physiological, pathological, and histological preparations, including a series of skulls illustrating dentition from infancy to the completion of the process of the adult, and the normal changes through life to old age. Preparations, natural and artificial, greatly facilitate the study of the nervous and vascular systems. The design is to make available every practicable appliance in this direction.

The odontological collection is probably the largest and best of its kind to be found in any dental college in the world. It comprises the entire set of crania and odontological specimens presented by the late Professor Ford, and has been more than doubled in size and value by the gift of the private collection of Dr. William Mitchell, of London, England, who has spent many years and large sums of money in bringing together material from all quarters of the world. Additions to this collection are desired, and gifts of material illustrating comparative odontology and typical or abnormal human teeth, will be gratefully received.

#### **TAFT LIBRARY**

A library of dental science (named in honor of the late Professor Jonathan Taft), containing almost every known work on this specialty, including an almost complete file of every dental journal published is shelved in the Dental building, where it is accessible to all students. A finely appointed reading room is connected with the library. Nineteen dental journals are regularly received.

**RULES GOVERNING PARTICIPATION IN PUBLIC  
ACTIVITIES**

For the rules governing participation in public activities, see page 115.

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**FEES AND EXPENSES**

*The Matriculation Fee and the Annual Fee must be paid in advance, and no seat will be assigned to a student until after such payment. For the rules governing Second Semester fees and the refunding of fees, see page 136.*

**MATRICULATION FEE.** — For Michigan students, \$10; for all others, \$25.

**ANNUAL FEE.**—For Michigan students, \$180 for men, \$175 for women; for all others, \$260 for men, \$255 for women. The annual fees include all laboratory fees except the materials used in chemical laboratories.

**GRADUATION FEE.**—For all alike, \$10.

Added information in regard to expenses may be found on page 138.

# School of Education

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*A Special Announcement giving further information in regard to this School is published annually. For copies of this Announcement or for other information relating to this School, address the Secretary of the School of Education, Ann Arbor, Michigan.*

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In 1879 the Board of Regents of the University of Michigan established a chair of the Science and the Art of Teaching, the first permanent department devoted exclusively to the training of teachers in any American college or university. In 1907 the department of the Science and the Art of Teaching became known as the department of Education, and this, in turn, was elevated to a School of Education in 1921.

The aims of the Regents in establishing the School of Education as one of the professional schools of the University of Michigan are:

1. To prepare University students for the higher positions in the public school service.
2. To promote the study of Education as a science.
3. To secure to teaching the rights, prerogatives, and advantages of a profession.
4. To give a more perfect unity to our state educational system by bringing all public schools into closer relationship with the University.

## ADMISSION

1. The requirements for admission to the School of Education shall be sixty semester hours (together with sixty points or the equivalent) or junior standing in any college in the University of Michigan or other institution of like grade. These requirements may be waived in special cases on consent of the Dean of the School of Education and the Dean of that college in the University of Michigan in which the applicant has done his academic or technical work. Each applicant for admission shall present a statement from the Dean, or Registrar of the college in which he has done his academic or technical work, certifying that he has satisfied the requirements herein specified.

2. Applicants desiring to specialize in physical education or in manual, industrial or applied arts may be admitted to the School of Education in the freshman year. Requirements for admission will be the same as those for the freshman year of the College of Literature, Science, and the Arts. (See page 139.)

### **ADMISSION TO ADVANCED STANDING**

An applicant who brings a certificate of standing from an approved college or university, showing that he has satisfactorily completed work in that institution in addition to that required for entrance, may be admitted, without examination, to equal standing in this School.

### **REGISTRATION**

1. Students in the School of Education shall, at the beginning of each year of residence, enroll with the Secretary of the School of Education; pay their fees to the Treasurer of the University; and at the beginning of each semester file with the Secretary of the School of Education blanks, properly filled out, showing the courses they expect to pursue during the semester. These three steps shall be construed as constituting registration in the School of Education.

2. Graduate students shall register with the Dean of the Graduate School and conform to all the rules and regulations of that School. For full description of regulations governing graduate work in education, see page 603.

### **GRADUATION**

Students in the School of Education who present a total of one hundred twenty hours of credit and one hundred twenty honor points, including credits earned in preliminary college work, shall receive the recommendation of the Faculty for graduation. Of the one hundred twenty hours of credit and the one hundred twenty honor points submitted at least one hundred hours and one hundred points shall be earned in academic subjects. This requirement does not apply to students pursuing such definitely outlined programs as Physical Education and Vocational Education; and it may be waived for candidates preparing for administrative and supervisory positions and in other special cases on the consent of the Dean of the School of Education. The work prescribed in the School of Education includes the professional courses requisite for the Teacher's Certificate and the regular academic and technical courses. These academic and technical courses shall be taken in the School or College in which they are regularly offered.

No candidate will be recommended for graduation, except by vote of the Faculty, who has been in residence at this University, registered solely in the School of Education, less than one academic

year and who has earned while in residence in the School of Education less than thirty hours of credit. The senior year, or its equivalent, must be spent in residence in this School.

For a matriculated student regularly enrolled in this School a summer session will be considered as equivalent to one-half a semester's residence.

### **DEGREES**

Students who have fulfilled all the requirements for graduation from the School of Education shall be recommended by the Faculty for the degree of Bachelor of Arts in Education or Bachelor of Science in Education.

### **RULES RELATING TO EXAMINATIONS AND MARKS**

The rules of the School of Education relating to examinations and marks are identical with those of the College of Literature, Science, and the Arts, see page 156, with the few exceptions following:

1. In the School of Education, consent of the Administrative Committee must be secured for examinations taken at special times.
2. Blanks for use in removing incompletes and for making up examinations should be obtained from and filed with the Secretary of the School, and such examinations should be held under her supervision.

### **TEACHER'S CERTIFICATE**

The Teacher's Certificate is given to a student in connection with his bachelor's degree, provided he has taken fifteen hours in the School of Education. These hours must include the following courses: Secondary Education I, Educational Psychology I, and one of the Special Methods courses, listed as Secondary Education courses 150-160. It is also expected that each candidate will prepare himself adequately to teach one or more subjects.

Until October 1st, 1926, students graduating from the College of Literature, Science, and the Arts, who shall have completed the number of hours work in Education required by the School of Education for the Teacher's Certificate, shall be entitled to this certificate upon recommendation of the Faculty of the School of Education.

The certificate is also given to a graduate student at the time of receiving a master's or a doctor's degree, provided he had pursued teaching as a major or a minor study, or has otherwise satisfactorily completed an equivalent amount of pedagogical work.

By authority of an act of the State Legislature, passed in 1891 and amended in 1903 and 1921, the Regents, acting upon the recommendation of the Faculty of this School, give a Teacher's Cer-



tificate to any person who takes a bachelor's, master's, or doctor's degree and satisfactorily completes the courses specified. By the terms of this act, the certificate given by the Regents "shall serve as a legal certificate of qualification to teach in any of the schools of this State, when a copy thereof shall have been filed or recorded in the office of the legal examining officer or officers of the county, township, city, or district."

### **BUREAU OF APPOINTMENTS FOR TEACHERS**

A Bureau of Appointments is maintained by the University for the purpose of assisting men and women who are studying, or have studied, in the University of Michigan to secure positions as teachers. This service is performed gratuitously, in the interest of students of the University, and of superintendents of schools, boards of education, and college and university officers wishing to employ teachers. Persons desiring the services of the Bureau should address their communications to the Secretary of the Bureau of Appointments. The regular annual enrollment takes place the second week in November.

### **BUREAU OF EDUCATIONAL REFERENCE AND RESEARCH**

The Bureau of Educational Reference and Research of the School of Education, established primarily for service to the schools of Michigan in their educational problems of all sorts, is available and valuable also to students in the School of Education as a source of information and material. Though it stands ready to take up, as fast as its resources and personnel permit, any problem raised by the schools, its undertakings are at present for the most part in the field of tests and measurements.

The Bureau carries for sale the materials of a number of the best intelligence and educational tests, at publishers' prices; answers to questions of all sorts, personally and by correspondence; carries on the statistical work necessary to the answering of these questions and the working out of Michigan standards on various tests; furnishes bibliographies of periodical literature on given topics; sends out Bulletins of current information in the field of education; conducts the intelligence examinations of students placed on probation in the various colleges of the University; maintains a permanent exhibit of test material and books relating to testing; visits schools and school systems desiring to begin testing work, for the purpose of instructing the teachers, demonstrating the methods of testing, and actually conducting measurement work; and holds, at one or more times during the year, a conference of superintendents and others interested in educational problems.

### EDUCATIONAL LABORATORY

The School of Education is provided with a laboratory for the conduct of drill courses and of investigational work in the fields of mental testing and educational testing. The equipment includes a collection of charts, a collection of test blanks, apparatus and materials for such physical and mental tests as those listed in Whipple's *Manual of Mental and Physical Tests*, also a limited amount of special apparatus for research work in educational psychology and related fields.

### MILITARY SCIENCE AND TACTICS

The courses in Military Science and Tactics are designed to give a thorough groundwork in military subjects considered necessary as a part of the education of a commissioned officer in the Reserve Corps of the United States Army. A student enrolls for Military Science at the Headquarters, Reserve Officers' Training Corps, on the campus. He also elects his Military Science courses at the same time and place as he elects his other University courses, and receives academic credit therefor which counts towards graduation. Enrollments are for a period of four semesters; that is, for either a Basic Group or an Advanced Group in its entirety. The first four semesters constitute the Basic Group, and the second four semesters the Advanced Group. Once enrolled in either group the completion of that group becomes a prerequisite to graduation, unless the student is discharged from this obligation upon the recommendation of the Professor of Military Science and Tactics. Successful completion of a Basic and an Advanced Group will lead to a recommendation for a commission as an officer of the Reserve Corps. During the Advanced Group a student receives pay from the Government totaling about \$200. A deposit of ten dollars to cover property responsibility is required for each student. The deposit is refunded upon return of all property and equipment. For further information see page 97, and also the Special Announcement, Military Science and Tactics.

### FELLOWSHIPS, SCHOLARSHIPS, LOAN FUNDS, AND PRIZES

A large number of fellowships, scholarships, loan funds, and prizes exist, which are open to students of the School of Education. See page 117.

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## ORGANIZATIONS OF STUDENTS

Students in the School of Education are eligible to share the benefits of the following clubs, societies, and organizations: University Oratorical Association, Northern Oratorical League, Central Debating League, Midwest Debating League, The Women's League, The University Musical Society.

### **Men's Education Club**

The Men's Education Club was established at the University of Michigan in 1907. All men students interested in Education as a profession are eligible to membership. The staff of the School of Education likewise belongs to the organization and frequently attends its meetings. The Club meets fortnightly. A program is usually furnished by the club members, and eminent educators are frequently invited to speak before it. Topics of real contemporary interest constitute the themes for consideration, and many valuable discussions are had. The social comminglings and the friendships established among the members are also important advantages that result from the organization.

### **Phi Delta Kappa Fraternity**

A chapter of the national honorary educational fraternity of Phi Delta Kappa has been organized in connection with the School of Education. Under the constitution of the Society, only those students are eligible to membership who are enrolled in the School of Education, who expect to make teaching or the administration of schools a permanent vocation, and who give evidence of superior qualities of scholarship, character, and initiative. The purpose of the fraternity as stated in the constitution is "to support the highest educational ideas and to encourage unswerving allegiance to the principles underlying American public education." Three ideals have been adopted by the fraternity which it endeavors to perpetuate in itself as an organization and in the professional lives of its members. They are Research, Service, and Leadership.

### **Girls' Education Club**

Correlative with the Men's Education Club is the Girls' Education Club. This Club has been in existence in various forms since 1913. All girls interested in Education as a profession are eligible to membership. Meetings are held monthly and interesting programs are provided.

### **Pi Lambda Theta**

The honorary Girls' Educational Club was installed Dec. 9, 1922 as the Xi Chapter of Pi Lambda Theta, the national honorary and educational fraternity for women. Membership in the fraternity is confined to those of superior scholarship and strong professional interest. The aims of the society are to foster professional spirit, the highest standard of scholarship and professional training, graduate work, and research in the field of Education, and to promote a spirit of fellowship among women in the profession of teaching.

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## GRADUATE WORK IN EDUCATION

For full particulars concerning graduate work, consult the chapter on the Graduate School.

*Graduate Conference:* All graduate students majoring in Education are expected to meet with the faculty every alternate Monday evening from 7 to 9 o'clock. This conference, which carries no university credit, affords opportunity for each student to report his problem and to secure from his fellow students and the faculty constructive criticism of the method and results of his investigations. Students living outside Ann Arbor are required to attend the conference only when their own problems are discussed.

### I. THE MASTER'S DEGREE

*Nature:* The year of work required for the Master's degree must not only be of graduate degree and quality, but must also, to quote from the report of the Dean of the Graduate School, "be organized about some one interest, for the pursuit of which there has already been adequate preparation." While the candidate is not permitted, as a rule, to take all his work in the School of Education, and is, indeed, at times allowed to take as much as 50 per cent of it in other departments, nevertheless "he may count nothing for his degree that is not cognate to his department of specialization." The aim is to avoid extremely narrow specialization and yet secure "singleness of interest and performance."

*Dissertation:* A dissertation is not required of candidates for the Master's degree in the School of Education. However, the study of educational problems is now so universally undertaken by the methods characteristic of scientific investigation that the School is anxious to imbue its graduate students with the spirit of these methods and to acquaint them with their technique; to this end it encourages the undertaking of research activities by all qualified students and grant credit on a systematic basis of one hour credit for each three hours per week upon problems approved by members of its faculty pursued under their direction.

#### *Extra-Mural Work:*

(a) Work is deemed purely *in absentia* when it is carried on outside of Ann Arbor and without regular conferences with members of the faculty. According to the regulation of the Graduate School, the privilege of working on this basis is restricted to graduate students who have already met the minimal residence requirements and who are merely finishing work already begun and directed at the University.

(b) Students of excellent previous record, if regularly qualified for graduate study, may obtain graduate credit for work done in extension courses, provided these courses embrace subject matter consistent with the regular requirements for an advanced degree, provided the student is able to make arrangements with the teachers of these courses for special assignments of work, and provided the conditions under which the work is undertaken are found to be favorable.

(c) Persons otherwise qualified for graduate work, if engaged in work outside of Ann Arbor which affords them opportunity for observation or experiment in the field of education, may enroll as graduate students, may be given "constructive residence," and may thus in time complete the requirements for an advanced degree. These students are expected to pursue their work under the direction of the members of the Education faculty with whom the work is arranged, and for this purpose to confer at Ann Arbor with their instructors at intervals of ordinarily not more than two weeks. As a rule, residence cannot be fully accomplished by extra-mural work of this sort. On the contrary, these students will usually be asked, before taking their degree, to complete their residence requirement by enrolling in the regular courses at Ann Arbor (either at the regular sessions or the summer sessions) for a continuous period of at least sixteen weeks.

Those persons of this group who are actively engaged in teaching and who desire to register in the Graduate School for not to exceed five hours per semester are termed "part-time students." They pay a fee of *twenty-five dollars* in place of the usual graduate tuition fee. (See the Graduate Announcement for other information as to graduate fees.)

## II. THE DOCTOR'S DEGREE

*Duration:* Normally six semesters of graduate work are required.

*Residence:* At least two semesters must be spent in residence (the last two except in certain special cases of Bachelors of the University of Michigan). For extra-mural work see under the Master's Degree.

*Supervision:* The candidate's work will be directed by a special committee designated by the Dean of the Graduate School and representative of the lines along which the candidate proposes to work.

*Candidacy:* Note the distinction between an *applicant* and a *candidate*. Candidacy must be formally announced not earlier than one year after beginning graduate work and not later than two semesters prior to the final examination; also the subject of the dis-

sertation must be approved by the committee when candidacy is announced. The examinations in French and German must also precede candidacy.

*Examinations:*

(a) Graduate students attending regular courses must take the examinations in these courses like other students.

(b) Special examinations in French and German will be held as already stated. No modification of this requirement can be made save by formal request of the Committee in charge of the candidate's work and the concurrence of the Executive Board of the Graduate School.

(c) Candidates for the doctorate in this department will be given by the committee in charge a preliminary written examination upon the work represented in the fields described below. This examination will take place when candidates have completed all, or nearly all, of their work other than the dissertation, and will ordinarily antedate the final examination two semesters.

(d) A final oral examination to be held after all the technical requirements have been met (usually early in June) will deal principally with the dissertation.

*Dissertation:* Latest date for completion of the dissertation is May 1st. Note carefully other regulations in the Announcement of the Graduate School.

*Minimal Requirements:* Subject to modification in exceptional cases, candidates for the Doctor's degree who major in Education are expected to demonstrate in the preliminary written examination both expert knowledge of the particular aspects of education in which they are specializing and also reasonable familiarity with the aspects of education that would be indicated by university courses of the following character:

- I. History and Principles of Education.
- II. Educational Administration.
- III. Secondary Education.
- IV. Elementary Education.
- V. Educational Psychology.
- VI. Educational and Mental Measurements (including Experimental Education).
- VII. Vocational Education.
- VIII. Physical Education and Hygiene.

*Distribution of Work beyond the Minimal Requirement:* The doctor's degree is not awarded to students of education upon the completion of a specified period of study or the amassing of a spe-

cified series of credits, but rather upon the thorough knowledge of the problems and principles of education generally, and upon the demonstrated ability to pursue independent research in some aspect of the educational field. Just how much, and just what university work is necessary to secure this knowledge and to demonstrate this ability is decided for each graduate student by his committee. Nevertheless, a rough idea of the distribution of work may be given to indicate what might be expected in a typical instance. Of the three years of graduate work which is usual in preparation for the doctorate, approximately one year will be needed for the dissertation. To meet the minimal requirements previously cited would probably mean the completion of some 30 hours of work, of which perhaps a third would have been covered in work as an undergraduate. This would mean that the typical graduate student in education would need to devote some 20 hours, or the better part of a year, to building up his general familiarity with the whole field of education. There would remain something more than one year of work other than the dissertation. Of this period it may be assumed that from a fifth to a half would be devoted to gaining expert knowledge of some one or some ones of the foregoing aspects of education, and that from a half to four-fifths would be available for work in other departments of the University.

This work in other fields than education is to be selected as to be cognate to the candidate's main purpose. In illustration, fields that suggest themselves are:

I. For those specializing in the History and Principles of Education: sociology, history, and philosophy.

II. For those specializing in Educational Administration: sociology, political science (especially municipal administration), and economics.

III. For those specializing in Secondary Education: psychology, sociology, political science, economics, and philosophy.

IV. For those specializing in Elementary Education: psychology, sociology, economics.

V. For those specializing in Educational Psychology: psychology, physiology, neurology, zoölogy (with special reference to heredity), and psychiatry.

VI. For those specializing in Educational and Mental Measurements: experimental psychology, abnormal psychology, sociology, hygiene, statistics.

VII. For those specializing in Physical Education and Hygiene: psychology, physiology, neurology, general hygiene.

VIII. For those specializing in Vocational Education: psychology, sociology, economics (especially labor problems), and political science.

## FEES AND EXPENSES

*The Matriculation Fee and the Annual Fee must be paid in advance, and no student can enter upon his work until after such payment. For the rules governing Second Semester fees and the refunding of fees, see page 136.*

**MATRICULATION FEE.** — For Michigan students, \$10; for all others, \$25.

**ANNUAL FEE.** — For Michigan students, \$85 for men, \$80 for women; for all others, \$110 for men, \$105 for women.

**PART-TIME FEE.**—Specially interested persons whose occupations are such as to prevent them devoting their entire time to study, and who are regularly admitted as students in the School of Education, may elect not more than five hours a week, upon the payment of a fee of \$25, in lieu of the regular annual fees. Such students must pay the matriculation fee the same as other students.

**GRADUATION FEE.**—For all alike, \$10.

**TEACHER'S LIFE CERTIFICATE FEE.**—For all alike, \$2.

**GYMNASIUM FEE.**—For the rental of a locker in the Gymnasium, a fee of \$2 is charged for men, \$1 for women.

For additional information in regard to expenses, see page 138.

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## CURRICULA

It is very desirable that each student undertaking work in the School of Education shall, as early as possible, plan for himself a curriculum definitely preparatory to a professional calling. Ordinarily it will prove advantageous to fit one's self for a specific type of service.

If the candidate is to become a classroom teacher, he is urged to prepare himself thoroughly in the subject matter he expects to teach. Each student will find it to his advantage to be prepared to teach more than one subject. In addition to the professional work pursued in the School of Education, and to subject matter courses, each student is advised to secure at least an appreciative knowledge of the great fields of thought kindred to education, namely, philosophy, psychology, sociology, heredity, economics, political science, and public speaking.

Below are listed, under various headings, courses which are definitely designed to meet the needs of the several groups of students. Each individual is urged to consult freely with the Dean and the heads of the various departments in making his selections.



**ELEMENTARY SCHOOL TEACHERS**

History of Education.  
Educational Psychology.  
Psychology of Common School Branches.  
Psychology of Exceptional Children.  
Introduction to Intelligence Testing.  
Introduction to Educational Measurements.  
School and Personal Hygiene.  
Educational Administration and Supervision.

**HIGH SCHOOL TEACHERS**

Educational Psychology.  
Introduction to Secondary School Problems.  
Introduction to Intelligence Testing.  
The Junior High School.  
The High School Curriculum.  
Observation and Special High School Methods.  
Principles of Teaching in Secondary Schools.  
Introduction to Educational Measurements.  
History of Education.  
Vocational Guidance and Placement.  
Social Education.  
Principles of Education.

**HIGH SCHOOL PRINCIPALS**

Administration and Supervision of Secondary Schools.  
Principles of Teaching in Secondary Schools.  
The High School Curriculum.  
The Junior High School.  
The School System of Other Lands.  
Introduction to Intelligence Testing.  
Introduction to Educational Measurements.  
Social Education.  
Principles of Education.  
Vocational Guidance and Placement.

**SCHOOL SUPERINTENDENTS AND SUPERVISORS**

School Administration and Supervision.  
Administration and Supervision of Secondary Schools.  
Introduction to Intelligence Testing.  
Introduction to Educational Measurements.  
Psychology of the Common School Branches.  
Psychology of Exceptional Children.  
Vocational Guidance and Placement.

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Administration of Vocational Education.  
Social Education.  
Principles of Education.  
Educational Statistics.  
Public Speaking.

**SPECIALISTS IN EXPERIMENTAL EDUCATION**  
(Tests and Measurements)

Educational Psychology.  
Secondary Education.  
Introduction to Mental Testing.  
Individual Intelligence Testing.  
Group Intelligence Testing.  
Advanced Mental Testing.  
Introduction of Educational Measurements.  
Advanced Educational Measurements.  
Psychology and Education of Exceptional Children.  
School Administration.  
Vocational Counseling.  
Problems in Educational Psychology.  
Problems in Experimental Education.  
Psychology of the Common Branches.  
Educational Statistics.  
General Psychology 7.  
General Psychology 21 (Mental Measurements and Mental Pathology).  
General Hygiene 1.  
Sociology 19.  
Sociology 28.

**SPECIALISTS IN VOCATIONAL EDUCATION**

Introduction to Vocational Education.  
Vocational Guidance and Placement.  
The Social and Economics Background of Vocational Education.  
Methods of Teaching Industrial Subjects.  
The Compulsory Part-time School.  
Problems in Vocational Education.  
Problems in Vocational Guidance.  
Administration of Vocational Education.  
Educational Psychology.  
Introduction to Mental Testing.  
Introduction to Secondary School Problems.  
Principles of Sociology 19  
General Economics 1a.  
Labor Problems, Economics 3.  
Political Science 1.

### COURSES OF INSTRUCTION

The Courses of Instruction announced in the School of Education for the year 1923-1924 are described below. The amount of credit assigned each course is indicated by *one hour credit*, *two hours credit*, etc.

All courses listed from 1 to 99 are open to undergraduates; all courses from 101 to 199 are open to seniors, graduate students, and teachers of experience, with the exception of Special Method Courses which do not carry graduate credit; and all courses from 201 upward are for graduate students only.

Students should consult the Announcement of the College of Literature, Science, and the Arts for description of academic courses and for the amount of credit assigned each course. Students desiring to elect courses in other schools and colleges of the University should consult the Dean of the School of Education before making their elections.

#### I

### HISTORY AND PRINCIPLES OF EDUCATION

The value of the History of Education in the professional training of the teacher is to give perspective to the work of the school (1) through understanding the purpose of formal education in the social process, (2) through deriving an adequate conception of the function of the aim, curriculum, method, and organization of education by studying these constant factors as they appear in the historical development of various peoples, (3) through knowing the conditions in which present day theories and practices developed, thus giving a basis for evaluating their worth, (4) through appreciating historically the meaning of the extension of the privilege of education and of the widened scope of the school, and (5) through understanding the part that education has played in forming national ideals and policies.

The presentation of the work given in this field will be governed by the above statement of aims, but the emphasis upon the different aims will vary with the content of the course.

In all historical courses, with the exception of 201, graduate students will be required to present a satisfactory thesis in addition to the regular work of the class.

#### FIRST SEMESTER

101. The History of Education from the Age of Pericles to the Rise of Scientific Enquiry in the 17th Century. *Two hours credit.*  
Professor JACKSON.

This course in dealing with past civilization aims (1) to give the student a cultural background to the conceptions of education, in that it shows clearly that education is a conscious attempt on the part of society to perpetuate its past achievements and

realize its ideals of the future; (2) to give a basis for evaluating many of our educational ideas and practices which are included in present-day systems by virtue of tradition; (3) to give to students not familiar with this period of history a general view of the intellectual development of Western Europe as related to educational thought.

102. The History of Education in the United States. *Two hours credit.* Professor JACKSON.

This course aims to consider the important present-day problems in the organization, administration, and adjustment of public education in the United States in the light of their historical development. Not open to students who have had Course 103.

114. Social Education. *Two hours credit.* Mr. PELLETT.

This course aims to apply the principles of sociology to educational theory and practice. Special consideration is given to the organization of public education, the readjustments of curricula, the objectives of vocational education, moral character, etc.

2014. Seminary in the History of Education. *Two hours credit.* Professor JACKSON.

In this course graduate students will be given opportunity to do intensive work in some special field of the history of education. Reports at stated intervals and a final thesis will be required. Students electing this course must have done a satisfactory amount of work in the general field of the history of education, and it is also highly desirable that they be well grounded in history and sociology.

#### SECOND SEMESTER

102. The History of Education in the United States. *Two hours credit.* Professor JACKSON.

Sections and hours as in the first semester. Not open to students who have had Course 103.

103. The History of Modern Education. *Two hours credit.* Professor JACKSON.

This course will deal with the educational history of the Renaissance, the Reformation, and the later development of national educational systems in Europe and the United States. Not open to students who have had course 102.

106. Principles of Education. *Two hours credit.* Professor WHITNEY.

This course is designed to meet the needs of experienced teachers who desire to familiarize themselves with fundamental principles as criteria for evaluating educational ideas and

practices. Special attention is given to an analysis of the individual process, the social process, and the educational process including principles underlying the making of the curriculum and methods of teaching.

- 201*b*. Seminary in the History of Education. *Two hours credit.*  
Professor JACKSON.

This course is similar in character to Course 201*a*.

#### SUMMER SESSION OF 1924

- 101*s*. The History of Education from the Age of Pericles to the Rise of Scientific Inquiry in the Seventeenth Century. *Two hours credit.* Professor JACKSON.
- 102*s*. The History of Education in the United States. *Two hours credit.* Professor JACKSON.
- 106*s*. Principles of Education. *Two hours credit.* Professor RAUP.
- 206*s*. Principles of Education. For graduate students. *Two hours credit.* Professor RAUP.

## II

### EDUCATIONAL ADMINISTRATION AND SUPERVISION

#### FIRST SEMESTER

- 1*a*. School Administration. *Four hours credit.* Professor WHITNEY and Mr. PELLETT.

This course is designed for undergraduates who are looking forward to positions as principals, supervisors, or superintendents; others may be admitted by permission. It aims to discuss organization and management of city school systems; the training of teachers in service; standards of efficiency; and such other problems as pertain to scientific school procedure.

5. School Administration. *Two hours credit.* Professor MOEHLMAN.

This course is designed for students in Physical Education; other students will not be admitted. It plans to give a general view of organization, administration, and general educational relationships, including the community, school boards, superintendents, supervisors, for the purpose of orienting supervisors and directors of Physical Education. Lectures and assigned readings.

- 101*a*. Principles of School Administration. *Four hours credit.* Professor WHITNEY and Professor MOEHLMAN.

This course is designed primarily for graduate students who have had teaching experience and are planning to become principals, supervisors, or superintendents. It aims to discuss the legal aspects and the general principles underlying public school administration, with a detailed consideration of functions of legislation, administration, instruction, child accounting, finance, and research. Lectures, assigned readings, and problems.

- 201a. Seminary in School Administration and Supervision. *Hours and credit to be arranged.* Professor WHITNEY and Professor MOEHLMAN.

Students will be assigned specific topics for investigation.

SECOND SEMESTER

- 1b. School Administration. *Four hours credit.* Professor WHITNEY and Mr. PELLETT.

This course is a continuation of 1a but is open by permission to persons of considerable teaching experience who have not had 1a. It aims to consider specific problems of school administration. Among the topics treated are: individual differences in their relation to retardation, elimination, and promotion of pupils; adjustment of curricula to individual needs; measuring achievement of pupils, rating of teachers; size of classes; length of class periods; school records and reports.

- 101b. Principles of School Administration. *Four hours credit.* Professor WHITNEY and Professor MOEHLMAN.

This course is a continuation of 101a and deals largely with the application of administrative theory to practical situations. Survey literature is studied extensively as well as current practices in city school systems. Lectures, assigned readings and problems.

103. School Supervision. *Three hours credit.* Mr. PELLETT and Superintendent BUTLER.

This course is designed for prospective superintendents, principals, and supervisors. The following topics will be considered: the nature and problems of supervision, school management, lesson-planning, drills, assignment of lessons, supervision of study, selection of subject-matter, scientific supervision, improvement of teachers in service and the personal qualities of the supervisor. Lectures and discussions two hours each week and laboratory work in observation two hours each week.

105. Child Accounting. *Two hours credit.* Professor MOEHLMAN.  
A discussion of the principles underlying Child Accounting, to-

gether with a consideration of a uniform system of procedure. The problem is approached from the standpoint of the state as an educational unit. This course is designed to give students who are preparing themselves for teaching positions, a general view of the important phases of educational administration. Lectures, assigned readings, and class problems.

- 201*b*. Seminary in School Administration and Supervision. *Hours and credit to be arranged*. Professor WHITNEY and Professor MOEHLMAN.

Students will be assigned specific topics for investigation.

#### SUMMER SESSION OF 1924

- 105*s*. Child Accounting. *Two hours credit*. Professor MOEHLMAN.  
107*s*. Personal Supervision of the Teaching Staff. *Two hours credit*. Superintendent LEWIS.  
108*s*. Rural Education. *Two hours credit*. Professor PITTMAN.  
110*s*. Educational Finance. *Two hours credit*. Professor MOEHLMAN.  
150*s*. Planning of School Buildings. *Two hours credit*. Deputy Superintendent COFFEY.  
201*bs*. Administrative and Supervisory Problems. *Two hours credit*. Superintendent LEWIS.

### III

#### SECONDARY EDUCATION

The courses offered in this department are designed primarily to fit students for positions as classroom teachers in junior and senior high schools, and to give training to prospective supervisors and administrators in such schools. The courses, therefore, fall into three rather clearly defined groups, namely: (1) those designed for students without teaching experience; (2) those designed for experienced teachers (or graduates of normal schools) who expect to continue in classroom positions; and (3) those designed to give prospective heads of departments, supervisors of special subjects, principals, and superintendents an acquaintance with the administrative problems relating to secondary schools.

Course 1 is a basic course and, for inexperienced teachers, is intended to serve as an introduction to all other work in the department. Course 101 is designed to serve the same purpose for more mature students, or those who have had previous professional training in normal schools. One of the courses in Special Methods (numbered 150 to 160) is also required of all candidates for the Teacher's Certificate, unless a course of similar character has been pursued elsewhere.

The other courses in this department which are especially recommended for classroom teachers are: 102, 103, and 105.

For specific advice relating to the several courses, students are urged to consult freely with the instructors.

FIRST SEMESTER

1. Introduction to Secondary School Problems. *Three hours credit.*

Professors EDMONSON and SCHORLING, and Mr. PURDOM.

The aim of this course is to give a practical introduction to the administrative, instructional, and personal problems incident to the work of the beginning teacher. Among the topics treated are: changing conceptions of secondary education; types of secondary schools; the organization of public education with special reference to the high schools; discipline; the technique of the recitation, i. e., lesson assignment, drill, questioning, teaching pupils how to study; the uses of texts and supplementary books; the professional training of teachers and the agencies for their continued professional development; and the personal relation of teachers to the supervisory officers, the pupils, and the community.

This course (or its equivalent) is required for the Teacher's Certificate and should be pursued during the student's junior year in college.

101. Principles of Teaching in Secondary Schools. *Three hours credit.* Professor DAVIS.

This course is designed primarily for teachers of experience, high school principals, and superintendents who desire to consider the larger problems of classroom instruction. It is also open to graduate students without teaching experience and to seniors with normal school training. While the course deals with some of the topics treated in Course 1, it seeks to consider them in a more thorough-going manner than is done in the elementary course. Among the topics treated are: the broadening purposes of high school instruction; bases of economy in learning; supervised study; how and what to mark; standard tests of high school subjects; examinations; certifying high school teachers; agencies of personal growth in service; and, in particular, general methods of classroom instruction.

Not open to students who have had Secondary Education 1.

103. The Junior High School. *Two hours credit.* Professor DAVIS.

This course will seek to discover the conditions and motives which have produced the junior high school; to sketch the historical development of the reform; to consider the essential educational and administrative principles which much determine its future growth; to outline the essential elements of the program of studies and the curricula within it; to con-



sider the best modes of school discipline and instruction which must operate in its work; and to formulate a concrete plan of procedure in inaugurating and perfecting the entire reform movement.

Open to senior and graduate students.

104. Administration and Supervision of Secondary Schools. *Three hours credit.* Professor EDMONSON.

This course is designed to meet the needs of experienced teachers and prospective superintendents and principals who desire to make a detailed study of the general problems of organization and administration of the high schools. Among the topics considered are: the aim of the secondary school; the supervision of classroom work; the relation of the high school to the elementary school and to higher institutions; educational and vocational guidance; problems of discipline; the control of student activities, etc.

Not open to undergraduates without experience in teaching, except by permission.

105. School Systems of Other Lands. *Two hours credit.* Professor DAVIS.

This course aims to give students an appreciative knowledge of the organization, administration, and teaching practices of foreign countries and to compare their school systems with those of America. Particular stress is laid upon the work of the secondary schools, with a view to offering suggestions for desirable modifications, affecting our own high school teaching.

- 201a. Seminary in Secondary School Problems. *Two hours credit.* Professors DAVIS and SCHORLING.

This course is designed primarily for graduate students who wish to make an intensive study of some administrative problem of the high school. Seniors with considerable teaching experience may be admitted by consent of the instructor.

#### SECOND SEMESTER

1. Introduction to Secondary School Problems. *Three hours credit.* Professor SCHORLING and Mr. PURDOM.

This is a repetition of Course 1 of the first semester. For the detailed outline, see the description given for that course.

102. The High School Curriculum. *Three hours credit.* Professor DAVIS.

This course traces briefly the historical development of the program of studies (curriculum) in secondary schools; seeks to discover the principles of program construction; considers the criticisms directed against the existing high school programs

of studies, attempts to evaluate each of the subjects found today in the high school, to judge of its scope, time allotment, and position in the course, and to suggest modes of its correlation and general methods of its presentation; makes a study of typical programs; and endeavors to formulate a satisfactory program for the high schools of today.

103. The Junior High School. *Two hours credit.* Professor DAVIS.  
This course is a repetition of the like-numbered one of the first semester. For description, see that course.

- [106. Administrative Problems of the Large High School. *Two hours credit.* Professor DAVIS.

The aim of this course is to consider some of the studies relating to the special administrative problems of high schools enrolling 300 pupils or more. Among the topics to be considered are: duties of principals; teachers'-councils; student-councils; adjusting the teaching load; securing the growth of teachers in service; making class schedules; school publicity; the junior college; extension services; credit for out-of-school work; credit for quality; deans for girls, moral training.

The course is open only to persons who have had Secondary Education 104, or who secure the special permission of the instructor. Each person will be expected to make a detailed study of some one of the topics listed above, and make a report. All prospective students of the course are requested to bring with them a goodly supply of such blanks, reports, and other illustrative material as they can secure from the schools. Omitted in 1923-1924.]

- 201b. Seminary in Secondary School Problems. *Two hours credit.* Professors DAVIS and SCHORLING.

This course aims to meet the needs of graduate students who wish to make an intensive study of some administrative problem of the high school, and to carry on their work by means of individual consultations and reports.

This is a continuation of 201a the first semester. Students who have not taken that course will not be admitted, except by very special consent.

## SPECIAL METHODS COURSES

All candidates for the Teacher's Certificate are required to pursue one of the courses listed below. Ordinarily this should be done the last semester of the senior year. The several courses should be elected under the division of Secondary Education. These courses do not count for graduate credit.

150. Observation, Laboratory Methods and Management in Botany. *Two hours credit.* Conferences, twenty hours of Observation in the Ann Arbor High School, reports and laboratory work. Professor NEWCOMBE.

This course is intended to give needful information and practice for the planning, equipment and conduct of a botanical laboratory; for the collection, cultivation, propagation and care of living material; for the collection and preservation of material for laboratory study and herbarium; for the sources of laboratory supplies and books; for the care of apparatus; for the planning of courses, field excursions, etc.

Open to those who have fulfilled the minimum requirement for the teacher's recommendation in botany.

153. Observation and Special Methods in Chemistry. *Two hours credit.* Professor SMEATON, Professor LICHTY, Assistant Professor MCALPINE, Mr. COLE and Dr. HODGES.

Lectures, conferences, readings, reports, discussions, on such subjects as the relative emphasis to be placed on the various parts of a high school course in chemistry; the choice and the planning of laboratory experiments and the correlation of laboratory work with textbook work; the comparison of various laboratory methods, notebooks and manuals; the selection and care of apparatus for lecture table and laboratory; the advantages and disadvantages of separate courses for boys and girls; the use of supplementary material, "household" chemistry, "practical" chemistry, etc.

Twenty hours of high school observation during the semester.

Open to those who have fulfilled the minimum requirement for the teacher's recommendation in chemistry.

156. Observation and Special Methods in English. *Two hours credit.* Professor FRIES.

Lectures, conferences, and collateral readings.

The aim of this course is to consider the fundamental principles of a class recitation and to offer to students in Education opportunity to observe the practical demonstration of these principles in teaching composition and literature. Careful consideration is given to formal grammar, the aims, values, and methods of teaching composition and literature, the courses of study, and such other factors as pertain to the instruction of English in the high schools. Students are required to observe twenty recitations during a semester.

Not open to juniors.

160. Observation and Special Methods in French. *Two hours credit.* Professor CANFIELD.

Lectures, readings, conferences, and reports.

Twenty hours of high school observation are required of each student.

Not open to juniors.

- [165. Observation and Special Methods in German. *One hour credit.*  
Assistant Professor HILDNER.

Lectures, conferences, reports, readings, and discussions.

The aim of this course is to consider principles of the recitation unit, to give opportunity for the observation of these principles as applied in practice, and to consider the principles underlying the teaching of modern language. Such problems as textbooks, pronunciation, proper use of translation will be given careful attention.

Twenty hours of high school observation are required of each student. Omitted in 1923-1924.]

168. Observation and Special Methods in History. *Two hours credit.*  
Professor DAVIS.

Lectures, conferences, reports, readings, and discussions.

The aim of this course is to give inexperienced but prospective teachers of history an opportunity to study the special problems of the classroom and to consider the special aspects of methods involved in history teaching in secondary schools. The work will consist of lectures and exercises dealing with such topics as the aims of history teaching; the relation of history to literature, biography, and science; the sequence of the various divisions of the subject; the proportionate emphasis to be accorded different phases of history; the organization of material; the use of textbooks and notebooks; the use of outline maps, charts, blackboards, reference books, source material, pictures, lantern slides, and other illustrative helps; tests and examinations; reports and reviews; lesson planning; types of recitation; the art of questioning; assignment of lessons, and other topics involving the technique of the recitation.

Each student will be required to spend twenty hours during the semester observing classroom work in the Ann Arbor High School.

Not open to juniors.

171. Observation and Special Methods in Latin. *Two hours credit.*  
Professor CRITTENDEN.

Lectures, readings, conferences, and critiques.

Practical application of the principles of class management; aims and values of the classics; the courses of study; outlines of the work as regards quantity, quality, and method; special consideration of the stress to be laid upon such features as pronunciation, vocabulary, syntax, translation, etc.; examination of some of the textbooks now in use.

Twenty hours of high school observation are required of each student.

Not open to juniors.

174. Observation and Special Methods in Mathematics. *One hour credit.* Professor KARPINSKI and Professor SCHORLING.

Lectures, readings, and conferences.

The application of the principles of class management to concrete situations; the aims and values of mathematical study; the course in mathematics for the secondary school; classification and critical consideration of special methods and modes; comparison of textbooks. Twenty hours of high school observation during the semester.

Not open to juniors.

178. Observation and Special Methods in Physics. *Two hours to be arranged.* Assistant Professor RICH.

Lectures, conferences, readings, reports, discussions, on such subjects as the relative emphasis to be placed on the various parts of a high school course in Physics; the choice and the planning of laboratory experiments and the correlation of laboratory work with textbook work; the comparison of various laboratory methods, notebooks and manuals; the selection and care of apparatus for lecture table and laboratory; the advantages and the disadvantages of separate courses for boys and girls; the use of supplementary material, "household" physics, "practical" physics, etc.

Twenty hours of high school observation during the semester.

Not open to juniors.

181. Observation and Special Methods in Spanish. *Two hours credit.* Professor WAGNER.

An attempt to contribute toward the practical preparation of the teacher. Lectures, readings, and problems. Discussion of values and aims, methods old and new, textbooks, curricula, history of the Spanish language, and elementary Spanish phonetics.

Twenty hours of observation work in the Ann Arbor High School will be required.

Not open to juniors.

185. Observation and Special Methods in Zoölogy. *Two hours credit.* Lecture or conference. Assistant Professor LARUE.

Lectures and conferences on such topics as the following: the aim and value of the zoölogical course in secondary schools, the content of the course, literature, the planning of the laboratory, choice of apparatus, purchase of supplies, etc. nunciation, vocabulary, syntax, translation, etc.; examination of some of the textbooks now in use.

Twenty hours of high school observation are required of each student.

Not open to juniors.

174. Observation and Special Methods in Mathematics. *One hour credit.* Professor KARPINSKI and Professor SCHLORING.

Lectures, readings, and conferences.

The application of the principles of class management to concrete situations; the aims and values of mathematical study; the course in mathematics for the secondary school; classification and critical consideration of special methods and modes; comparison of textbooks. Twenty hours of high school observation during the semester.

Not open to juniors.

178. Observation and Special Methods in Physics. *Two hours to be arranged.* Assistant Professor RICH.

Lectures, conferences, readings, reports, discussions, on such subjects as the relative emphasis to be placed on the various parts of a high school course in Physics; the choice and the planning of laboratory experiments and the correlation of laboratory work with textbook work; the comparison of various laboratory methods, notebooks and manuals; the selection and care of apparatus for lecture table and laboratory; the advantages and the disadvantages of separate courses for boys and girls; the use of supplementary material, "household" physics, "practical" physics, etc.

Twenty hours of high school observation during the semester.

Not open to juniors.

181. Observation and Special Methods in Spanish. *Two hours credit.* Professor WAGNER.

An attempt to contribute toward the practical preparation of the teacher. Lectures, readings, and problems. Discussion of values and aims, methods old and new, textbooks, curricula, history of the Spanish language, and elementary Spanish phonetics.

Twenty hours of observation work in the Ann Arbor High School will be required.

Not open to juniors.

185. Observation and Special Methods in Zoölogy. *Two hours credit.* Lecture or conference. Assistant Professor LARUE.

Lectures and conferences on such topics as the following: the aim and value of the zoölogical course in secondary schools, the content of the course, literature, the planning of the laboratory, choice of apparatus, purchase of supplies, etc.

Twenty hours of observation work with reports on the teaching of Zoölogy in the Ann Arbor High School will be required.

For practical training in laboratory methods prospective teachers of Zoölogy should elect Courses 18 and 18a in Zoölogy in the same year with this course or prior to it.  
Not open to juniors.

## SUMMER SESSION OF 1924

15. Introduction to Secondary School Problems. *Two hours credit.* Mr. PURDOM.
- 101s. Methods of Teaching in the High School. *Two hours credit.* Professor EDMONSON.
- 102s. The High School Curriculum. *Two hours credit.* Professor DAVIS.
- 103s. The Junior High School. *Two hours credit.* Professor DAVIS.
- 104s. Administration and Supervision of Secondary Schools. *Two hours credit.* Professor EDMONSON.
- 106s. Administrative Problems of the Large City High School. *Two hours credit.* Principal WILLETT.
- 108s. The Small High School and its Problems. *Two hours credit.* Superintendent JENSEN.
- 110s. The Use of Tests and Scales in the Improvement of Instruction in Secondary Schools. *Two hours credit.* Assistant Director RANKIN.
- 111s. Directed Study in Junior and Senior High Schools. *Two hours credit.* Principal WILLETT.
- 113s. Modern Tendencies in the Organization of the Social Studies. *Two hours credit.* Dr. STEPHENSON.
- 153s. The Teaching of Chemistry. *Two hours credit.* Professor
- 156s. The Teaching of English. *Two hours credit.* Mr. ———.
- 168s. Special Methods in the Social Studies. *Two hours credit.* Dr STEPHENSON.
- 171s. Observation and Special Methods in Greek and Latin. *Two hours credit.* Professor CRITTENDEN.
- 174s. Observation and Special Methods in Mathematics. *Two hours credit.* Professor KARPINSKI.

# IV ELEMENTARY EDUCATION

## FIRST SEMESTER

10. Educational Measurements in Elementary Education. *Two hours credit.* Professor COURTIS.

A course for beginners designed to give educational workers the point of view, the knowledge, and the skill necessary to apply scientific methods to the study and improvement of teaching. It will involve both lectures and laboratory exercises, and will cover (1) statistical and scientific methods in their application to education; (2) a knowledge of existing tests and scales for elementary and high school subjects; (3) a brief review of recent surveys and educational literature in the field of measurement; (4) the uses of measurement as an aid to administration, supervision, teaching, and special care of individual children; (5) measurement of the efficiency of educational processes, with emphasis mainly upon the subjects of writing, spelling, and arithmetic.

101. Psychology of the Common School Branches. *Three hours credit.* Professor WOODY.

Statement of fundamental laws of learning with special application to elementary education; definite survey of the experimental studies which furnish a basis for methods in language, reading, spelling, arithmetic, etc., the examination of texts and courses of study in the light of psychological principles evolved.

105. Principles Involved in the Project Method. Lectures, prescribed readings, and reports. *Two hours credit.* Professor COURTIS.

A discussion of the underlying principles, psychology, and experimentation that have changed the methods of teaching. Special attention will be given to the project and unit-task methods as applied to content and to drill subjects. Special assignments, extra readings, and reports will constitute the work for the second hour of credit.

- [110. Advanced Educational Measurements. *Two hours credit.* Professor COURTIS.

This course will review the type forms of construction represented in existing tests and scales and the statistical problems involved. Fundamental theorems, assumptions, and techniques will be examined critically. Practice will be given in the construction and standardization of school examinations, new tests, scales, and the whole problem of measurement of instruction will be organized from the constructional point of



view. Special attention will be given students who are at work upon construction problems of their own. The course will be of value to teachers, supervisors, and superintendents, who believe in measurement and wish to work with standard educational tests by examinations and tests of their own.

This course is open only to students who have had an elementary course in educational measurements.

Omitted in 1923-1924.]

- 125a. Seminary in Elementary Education. *Two hours credit.* Professor WOODY.

For advanced students, teachers of experience, and principals of elementary schools. Special phases of elementary education will be studied intensively. Enrollment by the consent of the instructor.

#### SECOND SEMESTER

10. Educational Measurements in Elementary Education. *Two hours credit.* Professor COURTIS.

Repetition of this course given the first semester.

103. The Administration, Interpretation, and Use of Tests in Elementary Education. *Three hours credit.* Professor WOODY.

For prospective and experienced superintendents, supervisors, or teachers. The need of measurements; selection of suitable tests; formation of testing programs; administration of testing programs; tabulation and graphing of results; determination of standards; use of tests in directing teaching and supervision; scientific method of experimentation, selection and diagnosis, and guidance.

The course will consist of lectures, readings, and individual problems. Course presupposes some knowledge of testing and statistics.

105. Principles Involved in the Project Method. *Two hours credit.* Professor COURTIS.

Repetition of this course given the first semester.

- [120. Methods of Instruction. *Two hours credit.* Superintendent BUTLER.

Designed for prospective superintendents, principals, and supervisors who desire to set up standards that will be useful in judging teachers and the teachers' work. The practices of certain prominent elementary schools will also be evaluated. Texts on the principles of method and history of education will be used considerably. Occasionally there will be a demonstration lesson by a competent teacher followed by a discussion with the teacher present. The project method, the theory of modern kindergarten, and other current educational topics will receive especial attention. This course should be

helpful to experienced elementary school teachers. Omitted in 1923-1924.]

- 125*b*. Seminary in Elementary Education. Professor WOODY.  
Course similar to 125*a*.

SUMMER SESSION OF 1924

10. Educational Measurements in Elementary Education. *Two hours credit*. Professor COURTIS.
- 10*s*. Psychology of the Common School Branches. *Two hours credit*. Professor WOODY.
- 105*s*. Principles Involved in the Project Method. *Two hours credit*. Professor COURTIS.
- 110*s*. The Use of Tests in the Improvement of Instruction in the Elementary School. *Two hours credit*. Assistant Director RANKIN.
- 115*s*. Teaching of Science in the Elementary School. *Two hours credit*. Miss BADER.
- 116*s*. Teaching of Reading and Literature in the Elementary School. *Two hours credit*. Miss BADER.
- 120*s*. Principles of Method. *Two hours credit*. Superintendent BUTLER.
- 125*s*. The Construction of the Elementary School Curriculum. *Two hours credit*. Professor WOODY.

V

EDUCATIONAL PSYCHOLOGY, MENTAL MEASUREMENTS,  
AND STATISTICS

FIRST SEMESTER

(See also Elementary Education, 101.)

1. Psychology of Education. Lectures, assigned readings, reports, and discussions. *Three hours credit*. Professor BERRY and Mr. PURDOM.

The work of this course centers on the learning process. It involves a study of psychological factors in their educational aspects; instincts and capacities as the basis of learning; types of mental and physical processes that should be reduced to the level of habit; conditions favorable to habit formation; plateaus and their significance; sense training; best methods of memorizing; development of the imagination; analysis and synthesis in relation to the development of the thought process.

5. Introduction to Mental Testing. *Two hours credit.* Professor WHIPPLE.

The general nature and purpose of mental tests. Demonstrations of typical test. Place of mental tests in educational administration. Practice in the statistical treatment of data, including the calculation of averages, medians, deviations, coefficients of reliability and of correlation, and the plotting of distributions, scatter diagrams, and other forms of graphic representation.

This course is designed to familiarize the general student of education with the place of mental testing in the work of the schools and also to serve as an introduction to further work in this field, as in Course 112, for which it is prerequisite.

101. Psychology and Education of Exceptional Children. *Two hours credit.* Professors BERRY and BARTLETT.

Extent and significance of individual differences in relation to education and society; classification of exceptional children; means of selection; psychological characteristics, and educational possibilities of the different types of exceptional children, — the supernormal, the subnormal, the incorrigible, the emotionally unstable, the blind, the deaf, and the crippled; subject-matter and methods of instruction; relative merits of special classes and special schools for the subnormal, and day schools and state institutions for the deaf and blind.

The purpose of this course is to acquaint the student with the problems connected with the education of those children who cannot with justice to themselves and others be educated in the regular grades.

- 102a. Seminary in Educational Psychology. *Two hours credit.* Professor WHIPPLE.

An intensive study of some aspect of educational psychology. Enrollment by consent of instructor. For 1923-1924 the topic will be: "Contributions of Germany to Educational Psychology."

- 103a. Problems in Educational Psychology. *Two hours credit.* Professor BERRY.

For students interested in the study of specific problems in the field of educational psychology. Enrollment by consent of instructor.

149. Elements of Mathematical Statistics. *Three hours credit.* Professor CARVER.

This course deals with the elementary theory and applications of mathematical statistics and will include a study of such topics as averages, measures of dispersion, coefficients of correlation and curve fitting. (If elected for credit outside the

School of Education this course should be elected as Mathematics 49.) This course does not count towards a Teacher's Certificate.

150. Elementary Mathematical Statistics. *Two hours credit.* Professor CARVER.

This course, a continuation of Mathematics 49, is designed particularly to meet the needs of students specializing in education. For qualified students the course may be elected without having pursued Course 149.

- 201a. Problems in Experimental Education. *Hours and credit to be arranged.* Professor WHIPPLE.

Graduate students or exceptionally qualified undergraduates may register for the prosecution of minor research problems for one to five hours credit. Each student will carry forward his own problem and his work will be guided by personal conferences. Stress will be laid upon the reporting of results in suitable form for publication.

#### SECOND SEMESTER

1. Psychology of Education. Lectures, assigned readings, reports, and discussions. *Three hours credit.* Professor BERRY and Mr. PURDOM.

The work of this course centers on the learning process. It involves a study of psychological factors in their educational aspects; instincts and capacities as the basis of learning; types of mental and physical processes that should be reduced to the level of habit; conditions favorable to habit formation; plateaus and their significance; sense training; best methods of memorizing; development of the imagination; analysis and synthesis in relation to the development of the thought process.

5. Introduction to Mental Testing. *Two hours credit.* Professor WHIPPLE.

Same as Course 5, first semester.

101. Psychology and Education of Exceptional Children. *Two hours credit.* Professors BERRY and BARRETT.

Extent and significance of individual differences in relation to education and society; classification of exceptional children; means of selection; psychological characteristics, and educational possibilities of the different types of exceptional children, — the supernormal, the subnormal, the incorrigible, the emotionally unstable, the blind, the deaf, and the crippled; subject-matter and methods of instruction; relative merits of special classes and special schools for the subnormal, and day schools and state institutions for the deaf and blind.

The purpose of this course is to acquaint the student with the problems connected with the education of those children who cannot with justice to themselves and others be educated in the regular grades.

- 102b. Seminary in Educational Psychology. *Two hours credit.* Professor WHIPPLE.

An intensive study of some aspect of Educational Psychology. Enrollment by consent of instructor.

- 103b. Problems in Educational Psychology. *Two hours credit.* Professor BERRY.

For students interested in the study of specific problems in the field of Educational Psychology. Enrollment by consent of instructor.

112. Intelligence Testing. *Two hours credit.* Professor WHIPPLE. Reading, class discussions, demonstrations, and laboratory practice exercises.

The first portion of the course will be devoted primarily to acquiring the technique of the Stanford-Binet test. Opportunity for practice in testing children will be provided.

The second portion of the course will be devoted primarily to the principles underlying the construction of group intelligence tests and to practice in handling the Army Alpha tests, the National Intelligence tests, the Whipple Grammar-Grade tests, Detroit First-Grade test, German Group test, etc. Special attention will be paid to the practical administration problems that arise in the use of these tests in public school work. There will be incidental instruction in the use of single tests of specific aspects of intelligence, such as tests of attention, of memory, of observation, and the like.

Students electing this course must have taken Introduction to Mental Testing. Enrollment is limited and subject to the consent of the instructor.

149. Elements of Mathematical Statistics. *Three hours credit.* Professor CARVER.

This course deals with the elementary theory and applications of mathematical statistics and will include a study of such topics as averages, measures of dispersion, coefficients of correlation and curve fitting. (If elected for credit outside the School of Education this course should be elected as Mathematics 49.) This course does not count towards a Teacher's Certificate.

150. Elementary Mathematical Statistics. *Two hours credit.* Professor CARVER.

This course, a continuation of Mathematics 49, is designed particularly to meet the needs of students specializing in educa-

tion. For qualified students the course may be elected without having pursued Course 149.

201b. Problems in Experimental Education. *Credit to be arranged.*  
Professor WHIPPLE.

Same as Course 201a. May be elected with or without previous election of that course.

SUMMER SESSION OF 1924

15. Psychology of Education. *Two hours credit.* Mr. PURDOM.

55. Introduction to Mental Testing. *Two hours credit.* Professor YOAKUM.

1015. Psychology and Education for Exceptional Children. *Two hours credit.* Professor BERRY.

1055. Educational Problems. *Two hours credit.* Professor BERRY.

1115. Educational Psychology. *Two hours credit.* Professor WHIPPLE.

1125. Individual and Group Intelligence Testing. *Two hours credit.*  
Professor YOAKUM.

2035. Seminary in Educational Psychology. *Two hours credit.* Professor WHIPPLE.

## VI

### VOCATIONAL EDUCATION AND VOCATIONAL GUIDANCE

Most of the courses offered in this department are intended primarily for (1) those who expect to teach in vocational or part-time schools, (2) those who expect to engage in vocational guidance and placement work, and (3) those who are preparing for administrative and supervisory positions in one of these fields. However, certain of the courses will be distinctly valuable also to superintendents, principals and high school teachers, who are coming each year into closer contact with vocational education and vocational guidance problems.

#### FIRST SEMESTER

101. Vocational Guidance and Placement. *Two hours credit.* Professor MYERS.

This course, which is planned primarily for teachers in vocational and part-time schools, should be of great value to high school and junior high school teachers. Among the topics treated are: present methods of entering occupations; social and economic waste involved; conditions and principles underlying the present situation; pre-vocational courses; self-analysis as a basis for vocational choice; English teaching as

a means of presenting occupational information; special course in occupational information; psychological tests; placement in relation to vocational counseling; vocational counseling in the compulsory part-time school.

104. The Compulsory Part-Time School. *Two hours credit.* Professor MYERS.

This course aims to meet the needs of those who are to teach or supervise in the part-time schools which Michigan cities are required to establish under the new law. Among the topics treated are: origin and development of part-time education; why made compulsory; purposes and functions of part-time schools; the Michigan law; determining the needs of a given community; classification of part-time pupils; the curriculum; methods of teaching non-vocational subjects; follow-up work; vocational counseling; dealing with employers.

SECOND SEMESTER

1. Introduction to Vocational Education. *Two hours credit.* Professor MYERS.

This course aims to give the student an introduction to the field of vocational education, with special reference to industrial education. Among the topics considered are: definition of terms vocational education, industrial education, pre-vocational education, practical arts, industrial arts, household arts, manual training; relation of vocational education to liberal education; social factors involved in vocational education; responsibility of society, of the employer, and of the worker; how vocational education has been given in the past; failure of past methods under modern industrial and economic conditions; important factors in modern industrial organization affecting the problem—specialization of processes, standardization of products, piece work and bonus systems, efficiency movement; corporation schools; Y. M. C. A. schools and classes; place of vocational education in a comprehensive program of public education; types of vocational schools and classes and the functions of each.

102. The Social and Economic Background of Vocational Education. *Two hours credit.* Professor MURLAND.

This course presents topics of social legislation and economics and their bearing upon vocational education. Topics to be considered are: compulsory education; child labor; regulation of working hours; working conditions as set by statute; unemployment; minimum wage laws; workmen's compensation; mothers' pensions; standards of factory inspection; state labor bureaus; and occupational diseases. Open to graduates and undergraduates. Discussion and conferences will follow each lecture.

103. *Methods of Teaching Industrial Subjects. Two hours credit.*  
Professor DIAMOND.

This is a general course in methods for those teaching or preparing to teach in day, part-time or evening industrial schools and classes. Among the topics treated are: preparation for the first session of the class; organizing the class; principles governing selection and arrangement of industrial teaching material; choice of problems and projects; the demonstration method; the method of illustration and the use of models, sketches, pictures, and other illustrative material; the lecture method; the experimental method; use of lesson sheets; inspecting and criticizing pupils' work; lesson planning; planning and conducting shop excursions; tests and examinations; records and reports; keeping up with changing conditions in industry.

105. *Problems in Vocational Education and Vocational Guidance. Two hours credit.* Professor MYERS.

Those registering for this course should have had Vocational Education 1 or 101, or both. They should also consult with the instructor before registering. This course will take up specific problems depending upon the interests of the members of the class.

**Vocational Education Courses Given Off the Campus**

(For further information concerning these courses, address the Department of Vocational Education, School of Education, University of Michigan.)

2. *Methods of Teaching Industrial Mathematics and Science. Two hours credit.* Given at Cass Technical High School, Detroit. Assistant Professor HAYES.

This course is designed to meet the needs of those who desire to teach shop mathematics and sciences to workmen in factory or public evening and day schools. It should be taken also by shop instructors in these schools. A study of the mathematics and sciences required in different trades is made, and type problems peculiar to different classes of work are solved. Methods of handling these classes and use of lesson sheets are discussed in preparation for practice teaching which will be required. It will be necessary for those who complete this course to be thoroughly familiar with the mathematical processes they expect to teach.

3. *Methods of Teaching Mechanical Drawing. Two hours credit.* Given at Cass Technical High School, Detroit. Mr. KEPLER.

This course aims to meet the needs of those who wish to teach Shop Drawing in all-day industrial schools, continuation and evening classes. For the present this course will serve the double purpose of affording training for teaching drafting as



a vocation and for teaching shop drawing to mechanics. Some of the topics treated are: determining the content of the course and its organization; attitude of the teacher towards the problem in hand; selection and presentation of suitable problems; specific drawing room problems such as projections, conventions and standards, dimensions and notes; free-hand working drawings; blue-print reading; sectional views. The working out in the drawing room of a course in Mechanical Drawing may be undertaken if the class desires. Open to students who have had a good course in Mechanical Drafting or who have had drafting room experience. Lectures, discussions, reports and sketches.

4. *Methods in Foremanship Training. Two hours credit.* Given in outside industrial centers by special arrangement. Associate Professor DIAMOND and Assistant Professor HAYES.

Owing to the demand for more and better training for the responsible positions held by foremen in modern industry, many plants are now planning to supervise this work more carefully. This course is offered for foremen or superintendents who are interested in organizing and conducting in their own plants classes for men who are now holding or need training for promotion to these jobs. The following topics will be taken up: methods of organizing a class; class management; the duties of a foreman relating to management, supervision, and training of workmen; making a department organization chart; relations with other departments and plant executives; making job analyses, and determining responsibility points; proper routing of work through department; interpreting policies of the management to the workmen; wage and bonus systems; promotions and raises; handling workmen; and production schedules. Upon completing this course, members of the class should be able to organize and conduct classes for foremen in their own plants.

5. *Methods of Teaching Shop Work. Two hours credit.* Given at outside industrial centers by special arrangement. Associate Professor DIAMOND and Assistant Professor HAYES.

This course is offered to those preparing for or now engaged in teaching shop work either in the public schools or in industry. Among the topics discussed are: securing and arranging material for a course of study; trade analyses; present day methods of training tradesmen for the industries; class management and the best methods of instruction; examinations and tests. Applicants for this course should be journeymen or men who have had several years' experience in teaching some trade. Students will be asked to lay out a course of study suitable for public school or a trade apprenticeship, and

from this course of study to prepare and present one or more carefully worked out lessons.

102. The Social and Economic Background of Vocational Education. *Two hours credit.* Given at Cass Technical High School, Detroit. Associate Professor MURLAND.

This course presents topics of social legislation and economics and their bearing upon vocational education. Topics to be considered are: compulsory education; child labor; regulation of working hours; working conditions as set by statute; unemployment; minimum wage laws; workmen's compensation; mothers' pensions, standards of factory inspection; state labor bureaus; and occupational diseases. Open to graduates and undergraduates. Discussion and conferences will follow each lecture.

104. The Compulsory Part-Time School. *Two hours credit.* Given at Cass Technical High School, Detroit. Associate Professor MURLAND, and at other points by Professor DIAMOND by special arrangement.

This course aims to meet the needs of those who are to teach or supervise in the part-time schools which Michigan cities are required to establish under the new law. Among the topics treated are: origin and development of part-time education; why made compulsory; purposes and functions of part-time schools; the Michigan law; determining the needs of a given community; classification of part-time pupils; the curriculum; methods of teaching; follow-up work; vocational counseling; dealing with employers.

108. Teaching Related and General Continuation Subjects in the Part-Time School. *Two hours credit.* Given at Cass Technical High School, Detroit. Associate Professor MURLAND.

This course is intended primarily for non-vocational teachers in part-time schools. It deals chiefly with selection and preparation of subject matter in (a) English, (b) Health and safety, (c) Citizenship, (d) Arithmetic, and methods of teaching these subjects to employed boys and girls. Teachers of the same subjects in all-day vocational schools, also, should take this course.

109. Seminary in Vocational Education. Studies of special administrative and teaching problems of vocational and part-time schools will be made by small groups or by individual students. Studies will include field work investigations and written reports. The course will be continued throughout the year.

*Two hours credit for each semester's work.* Hours and days of meeting to be determined at the opening session. Given at Cass

Technical High School, Detroit. Professor MYERS, Professor MURLAND.

111. Vocational Counseling. *Two hours credit.* Given at Cass Technical High School, Detroit. Mr. HAYES.

This course, which is offered especially to meet the needs of intermediate and high school counselors, will be divided into two parts: (a) Class considerations to include the following closely related problems and cases; need for providing scientific knowledge pertaining to the social, economic, and larger personal aspects of important life callings; contributions of psychology to the problems of an efficient choice; technique for securing reliable occupational information through special investigations and analyses; methods of evaluating and using these findings as means of educational and vocational guidance; possibilities for counsel and guidance in the regular work of the intermediate and high schools; opportunities for school counselors to cooperate with outside agencies; critical studies of operating vocational guidance departments and systems. (b) A specific problem requiring investigation, analysis, and organization, will be chosen by each member early in the course and the results of each study will be reported later in the class.

#### A FOUR YEAR CURRICULUM IN VOCATIONAL EDUCATION

When the School of Education was established it was provided that: "Applicants desiring to specialize in physical education or in manual, industrial or applied arts may be admitted to the School of Education in the freshman year." In harmony with this provision the following four year course has been organized and approved by the faculty. The credits of students entering with two years of work in other institutions in preparation for teaching manual arts will be checked by this program.

##### Principles Observed in Planning Program

1. Twenty-four semester hours of shop work (not including drawing) taken in other approved schools will be the maximum amount of credit allowed for shop work.
2. Not more than eight hours of mechanical drawing will be accepted towards graduation.
3. Three hours shop work will be considered equivalent to one hour of academic work.
4. Students from the School of Engineering entering the School of Education at the end of the Sophomore year with 70 hours credit will be given the same entrance credit as Literary College students who have completed the Sophomore year.

5. Any credits above the 60 (Literary) and 70 (Engineering) required for full standing at close of the Sophomore year will be determined in the School of Education at the time of entrance to the School of Education.
6. Seven of the required 15 hours in Education shall be taken in Vocational Education.
7. Students preparing to teach shop subjects will be expected to elect twenty-four hours of shop work and eight hours of mechanical drawing.
8. Students entering this course will be subject to the same entrance requirements as apply to other courses of the University.
9. Students pursuing this course will take Methods of Teaching Industrial Subjects in place of the high school observation course usually required for the Teacher's Certificate.

**First Year**

FIRST SEMESTER		SECOND SEMESTER	
	Hours		Hours
Rhetoric 1	3	Rhetoric 2	3
Chemistry 1, or Physics 1, or Math. 1	4	Chemistry 2, or Physics 2, or Math. 2	4
History 1	4	History 2	4
Electives	4	Electives	4
	<hr/> 15		<hr/> 15

**Second Year**

English 1	3	English 2	3
Economics 1	4	Economics 2	4
Sociology 19	4	Psychology 7	3
Electives	4	Electives	5
	<hr/> 15		<hr/> 15

**Third Year**

Ed. Psychology	3	Introduction to Vocational Education	2
*History 16	3	Introduction to Secondary School Problems	3
Public Speaking 1	3	*History 17	3
Electives	6	Electives	7
	<hr/> 15		<hr/> 15

\* This will become Industrial History when such a course is offered.

Fourth Year			
FIRST SEMESTER	HOURS	SECOND SEMESTER	HOURS
Compulsory Part-Time School or Social and Economic Background of Vocational Education	2	Vocational Psychology	2
Labor Problems (Ec. 3)	2	Principles of Education	2
Introduction to Vocational Guidance	2	Methods of Teaching In- dustrial Subjects	2
Electives	9	Electives	9
	15		15

## SUMMER SESSION OF 1924

15. Introduction to Vocational Education. *Two hours credit.* Professor ———.
1015. Vocational Guidance and Placement. *Two hours credit.* Professor ———.
1025. The Social and Economic Background of Vocational Education. *Two hours credit.* Professor MURLAND.
1035. Methods of Teaching Industrial Subjects. *Two hours credit.* Professor DIAMOND.
1045. The Compulsory Part-Time School. *Two hours credit.* Professor DIAMOND.
1085. Teaching General Continuation Subjects in the Part-Time School. *Two hours credit.* Professor MURLAND.
1135. Administration of Vocational Education. *One hour credit.* State Supervisor SMITH.
2015. Seminary in Vocational Education and Vocational Guidance. *Two to four hours credit.* Professor MYERS.
- Courses in Drawing and Shop Subjects. (See Colleges of Engineering and Architecture.)

## VII

## PHYSICAL EDUCATION, ATHLETICS, AND SCHOOL HEALTH

A curriculum in physical education, athletics, and school health has recently been organized which aims to train teachers to take charge of the physical health and well being of the children of the public schools, and to provide recreation for adult people in community centers. This curriculum is so constructed that students may obtain a broad general education in combination with specialized

training. This specialized training prepares along two lines: that of physical education, which includes gymnastics, play and games for all ages, and the foundation of a program of recreation and health that will reach the great mass of our growing youth; and that of Athletic Coaching, which fits the prospective candidate to train scientifically the school teams in the various branches of competitive sport, to instruct them in the most skilled methods of play, to build up friendly rivalry with other schools, and to use this rivalry to instill a strong school spirit.

This curriculum requires four years training and leads to the degree of Bachelor of Science in Education. The members of the faculty of the School of Education, of the Department of Hygiene and Public Health, and of the Department of Athletics, give the specialized instruction. Electives in other schools and colleges are permitted.

During the junior and senior years students of this school will have opportunity to do practice teaching, and will be used as instructors for gymnasium classes, for intra-mural athletic teams, and for freshman teams.

This curriculum, including a detailed statement of the special activities in gymnasium work and athletics, is outlined below. Students particularly interested in this work should write the Secretary of the School of Education for the special bulletin.

A special curriculum in athletic coaching is offered in the Summer Session. Students interested in this curriculum should write to Director Fielding H. Yost, University of Michigan, for special bulletin.

The curriculum together with the schedule of the theory and practice for both men and women is as follows:

First Year			
FIRST SEMESTER		SECOND SEMESTER	
	Hours		Hours
*Rhetoric 1	3	*Rhetoric 2	3
*Chemistry 1	4	*Zoölogy (Animal Biology)	4
*Electives	4	Edu. VII-1—Introductory	
Edu. VII-41 — Theory and		Hygiene	2
Practice of Physical Edu-		*Chemistry 2, or Electives	4
cation and Athletics	3	Edu. VII-42 — Theory and	
	—	Practice of Physical Edu-	
	14	cation and Athletics	3
			<hr/>
			16

\* For full description, see Announcement of College of Literature, Science, and the Arts.

Second Year			
FIRST SEMESTER	Hours	SECOND SEMESTER	Hours
*Public Speaking 1	3	*Public Speaking 2	2
*Psychology 7	3	Edu. VII-6a—Physiology	5
Edu. VII-2—Anatomy	5	*Sociology 19	4
*Electives	0-2	*Electives	2
Edu. VII-43 — Theory and Practice of Physical Education and Athletics	3	Edu. VII-44 — Theory and Practice of Physical Education and Athletics	3
	14-16		16
Third Year			
Edu. VII-3—Kinesiology	2	Edu. VII-6b—Physiology (Applied)	3
Edu. VII-4—Bacteriology	3	Edu. VII-7—Physical Reconstruction	2
†Edu. V-5—Educational Measurements	2	†Edu. V-1—Educational Psychology	3
Edu. VII-5—History and Principles of Physical Education	2	*Electives	4-5
*Electives	3-4	Edu. VII-46 — Theory and Practice of Physical Education and Athletics	3
Edu. VII-45 — Theory and Practice of Physical Education and Athletics	3		15-16
	15-16		
Fourth Year			
Edu. VII-8 — Community Play Movements	3	Edu. VII-10—School Health Problems	4
Edu. VII-9—School Health Problems	4	†Edu. III-1—Secondary Education	3
†Edu. II-5—Educational Administration	2	†Edu. VI-101—Vocational Guidance	2
*Electives	3-4	*Electives	3-4
Edu. VII-47 — Theory and Practice of Physical Education and Athletics	3	Edu. VII-48 — Theory and Practice of Physical Education and Athletics	3
	15-16		15-16

† For full description, see the Announcement of the School of Education.

Electives may be chosen only from the subjects offered by the School of Education or the College of Literature, Science, and the Arts, unless otherwise permitted by the Dean. Freshman electives may be chosen only from the list of "First Year Electives" given on Page 154. The maximum number of hours a week that may be taken in any year without special permission is sixteen.

## SEASONAL SCHEDULE OF THE THEORY AND PRACTICE OF PHYSICAL EDUCATION AND ATHLETICS FOR MEN

### First Year

#### FIRST SEMESTER

Education 41  
First Quarter—  
41a—Football Practice  
Second Quarter—  
41b—Basketball Theory and  
Practice  
41c—Baseball Theory  
41d—Gymnastics

#### SECOND SEMESTER

Education 42  
Third Quarter—  
42a—Football Theory  
42b—Gymnastics  
Fourth Quarter—  
42c—Baseball Practice

### Second Year

Education 43  
First Quarter—  
43a—Military Training  
Second Quarter—  
43b—Track Theory  
43c—Boxing  
43d—Gymnastics

Education 44  
Third Quarter—  
44a—Boy Scouts and Camping  
44b—Wrestling  
44c—Gymnastics  
Fourth Quarter—  
44d—Track Practice

### Third Year

Education 45  
First Quarter—  
45a—Practice Coaching  
Football  
45b—Graded Plays and Games  
Second Quarter—  
45c—Athletic Training and  
Conditioning  
45d—Gymnastics

Education 46  
46a—Practice Coaching Track  
Third Quarter—  
46b—Practice Coaching  
Basketball  
46c—Swimming  
46d—Gymnastics  
Fourth Quarter—  
46e—Tennis  
46f—Practice Coaching  
Baseball



**Fourth Year****FIRST SEMESTER**

Education 47  
 First Quarter—  
   47a—Practice Coaching Foot-  
     ball or Minor Sports  
   47b—Minor Sports  
 Second Quarter—  
   47c—Minor Sports (Con't)  
   47d—Gymnastics

**SECOND SEMESTER**

Education 48  
 Third Quarter—  
   48a—Business Administration  
   48b—Practice Coaching  
     Basketball  
   48c—Gymnastics  
 Fourth Quarter—  
   48d—Practice Coaching Track,  
     Baseball, Football

**SEASONAL SCHEDULE OF THE THEORY AND PRACTICE OF  
 PHYSICAL EDUCATION AND ATHLETICS FOR WOMEN**

**First Year****FIRST SEMESTER**

Education 41  
**Outdoor Season**  
   Hockey  
   Tennis  
   Games  
   Swimming  
   Minor Sports, Technique and  
     Practice  
**Indoor Season**  
   Gymnastics I  
   Dancing I  
   Basketball  
   Swimming  
   Minor Sports, Technique and  
     Practice

**SECOND SEMESTER**

Education 42  
**Indoor Season**  
   Gymnastics II  
   Dancing II  
   Basketball  
   Swimming  
   Minor Sports, Technique and  
     Practice  
   Camp Craft  
**Outdoor Season**  
   Baseball  
   Tennis  
   Archery  
   Swimming  
   Minor Sports, Technique and  
     Practice

**Second Year**

Education 43  
**Outdoor Season**  
   Hockey  
   Tennis  
   Swimming  
   Major Sports, Technique  
     Camp Craft  
**Indoor Season**  
   Gymnastics III  
   Dancing III  
   Folk Dancing  
   Basketball  
   Swimming  
   Major Sports, Technique  
     Camp Craft

Education 44  
**Indoor Season**  
   Gymnastics IV  
   Dancing IV  
   Folk Dancing  
   Basketball  
   Swimming  
   Major Sports, Technique  
     Camp Craft  
**Outdoor Season**  
   Baseball  
   Dancing  
   Track  
   Major Sports, Technique  
     Camp Craft

**Third Year**

**FIRST SEMESTER**

Education 45  
**Outdoor Season**  
 Practice Coaching  
 Elective Sport  
 Gymnastic Teaching,  
 Technique  
 Dancing Technique  
**Indoor Season**  
 Gymnastics V  
 Dancing V  
 Folk Dancing  
 Gymnasium Practice Teaching  
 Gymnastic Teaching,  
 Technique  
 Dancing Technique

**SECOND SEMESTER**

Education 46  
**Indoor Season**  
 Gymnastics VI  
 Dancing VI  
 Folk Dancing  
 Gymnasium Practice Teaching  
 Gymnasium Teaching,  
 Technique  
 Pageantry  
**Outdoor Season**  
 Track or Dancing  
 Coaching  
 Gymnasium Teaching,  
 Technique  
 Pageantry

**Fourth Year**

Education 47  
**Outdoor Season**  
 Practice Coaching  
 Elective Sport  
 Corrective Gymnastics  
 Remedial Gymnastics  
 Schoolroom Teaching and  
 Playground Work  
**Indoor Season**  
 Gymnastics VII  
 Dancing VII  
 Apparatus (Club Swedish)  
 Gymnastics, Practice Teaching  
 Corrective Gymnastics  
 Remedial Gymnastics  
 Schoolroom Teaching and  
 Playground Work

Education 48  
**Indoor Season**  
 Gymnastics VIII  
 Dancing VIII  
 Dancing, Practice Teaching  
 Gymnastics, Practice Teaching  
 Teaching and Adaptation  
 Schoolroom Teaching and  
 Playground Work  
**Outdoor Season**  
 Dancing or Track  
 Practice Coaching  
 Elective Sport  
 Dancing, Practice Teaching  
 Corrective Gymnastics  
 Teaching and Adaptation  
 Schoolroom Teaching and  
 Playground Work

**SUMMER SESSION OF 1924**

55. History and Fundamental Principles of Physical Education. *Two hours credit.* Professor MAY.
85. Community Play and Recreation. *Two hours credit.* Assistant Professor MITCHELL.
95. School Hygiene. *Two hours credit.* Professor SUNDWALL.
105. Child Hygiene. *Two hours credit.* Professor BARTLETT.

- 11s. General Hygiene and Public Health. *Two hours credit.* Professor SUNDWALL.
- A1s. Football Theory. *One or two hours credit*, if combined with A2s. Mr. LITTLE and Mr. WIEMAN.
- A2s. Football Practice. Mr. LITTLE and Mr. WIEMAN.
- A3s. Basketball Theory. *One hour credit*, if combined with A4s. Mr. MATHER.
- A4s. Basketball Practice. Mr. MATHER.
- A5s. Baseball Theory. *One hour credit*, if combined with A6s. Mr. FISHER.
- A6s. Baseball Practice. Mr. FISHER.
- A7s. Track and Field Theory. *One hour credit*, if combined with A8s. Mr. FARRELL and Mr. HOYT.
- A8s. Track and Field Practice. Mr. FARRELL and Mr. HOYT.
- A9s. Athletic Training. *One-half hour credit.* Mr. HOYT and Mr. FALLON.
- A10s. Gymnastics. Methods of Teaching. *One hour credit.* Professor MAY.
- A11s. Physical Examinations, Anthropometry, and Corrective Exercises. *One hour credit.* Professor MAY.
- A12s. Graded Plays and Games. *One hour credit.* Professor SAMSON and Assistant Professor MITCHELL.
- A13s. Organization and Administration of Athletics. *One hour credit.* Assistant Professor MITCHELL, and Mr. LITTLE.
- A14s. Boy Scouts and Camping. *One hour credit.* Professor SAMSON.
- A15s. Organized Play and Recreation. *One hour credit.* Assistant Professor MITCHELL.
- A16s. First Aid. *One hour credit.* Dr. REYNOLDS.  
Other courses in gymnasium work will be given by Professors MAY and BELL.

# School of Business Administration

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*A Special Announcement giving further information in regard to this School is published annually. For copies of this Announcement or for other information relating to this School, address the Dean of the School of Business Administration, Ann Arbor, Michigan.*

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By action of the Board of Regents in December, 1923, the School of Business Administration is to be established at the University July 1, 1924. The School will open with the beginning of the academic year 1924-1925.

## REQUIREMENTS FOR ADMISSION

To be eligible for admission to the School, candidates must have completed satisfactorily the requirements of the first three years of the College of Literature, Science, and the Arts, of this University, presenting a minimum of ninety semester hours, with at least a C average. Any student wishing to transfer to the School from another university will be admitted if, in the judgment of the authorities of the College of Literature, Science, and the Arts, his work elsewhere has been a full equivalent of the requirements of the first three years of that College of the University of Michigan.

In the three years of collegiate work thus required for admission to the School must be included certain prescribed courses. These will be indicated in the programs of study to be published in the first Announcement of the School. For the present it is sufficient to state that Economics 1, 2, 3, 9, 9a, 15, 38, and 39, Mathematics 1, 2, 49, and 51, and Political Science 1 and 2 must be included in the preliminary three years of collegiate work if the applicant is to be entitled to admission without question. During the first three years of existence of the School, however, students who have taken some but not all of these prescribed courses will be admitted to the School, provided the character of their records seem to entitle them to special consideration.

## CURRICULA

The programs of professional study offered by the School will normally require two years of resident work beyond the preliminary three years of collegiate work required for entrance. The studies

of the first year in the School will be similar for all programs, but in the second year there will be a large measure of differentiation. Among the programs which will probably be provided in the immediate future, are the following:

Financial Management,  
Sales Management,  
Personnel Management,  
Accounting,  
Statistics,  
Commercial and Investment Banking,  
Retail Store Management.

Other programs will be added when adequate staff and facilities are available. No attempt will be made in 1924-1925 to provide for the full list of second-year courses, but the instruction of the first year will be given in full. The second-year work of the School will be developed in 1925-1926.

### **DEGREE**

The School will grant a single degree, the Master of Business Administration (M.B.A.). This degree will be conferred upon those students who have satisfactorily completed in residence a two year curriculum in the School, in addition to the three years of collegiate prescribed for admission. Students may shorten their residence in this School by obtaining advanced standing through the transfer of credits from other schools or colleges; but no student will be granted the degree of Master of Business Administration who has not taken his final year of work in residence in this School.

### **COMBINED CURRICULUM**

Although the School will grant no bachelor's degree, provision will be extended for the earning of the degree of Bachelor of Arts in the College of Literature, Science, and the Arts upon a Combined Curriculum. Thus students who maintain a uniform record of good scholarship throughout the three years in the College and the first year in the School, earning at least ninety hours in the College with at least one and one-third times as many points as hours, and who apply for and are granted admission to the Combined Curriculum before April 20 of their third (junior) year in the College, will receive the degree of Bachelor of Arts upon the completion of the first year's work in the School.

It should be noted, furthermore, that students who are not enrolled upon the Combined Curriculum, but who remain in the College of Literature, Science, and the Arts for their fourth year of work, may, with the approval of the Dean of the School of Business Administration, take and count toward their A.B. degree twelve semester hours of credit secured through courses in Business Administration. Students enrolled in the College of Literature, Science, and the Arts prior to July 1, 1924, and not on the Combined Curriculum, may count towards the A.B. degree not to exceed twenty-four hours of courses in Business Administration.

# Graduate School

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*A General Announcement giving information in regard to the Graduate School is issued annually in March. In June or July of each year an Announcement of Studies for the ensuing year is issued. For copies of these and for information concerning admission and courses of study which is not given in them, address Professor Alfred H. Lloyd, Dean of the Graduate School.*

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The first graduate student of the University is recorded in the catalogue of 1856. The degrees of Master of Arts and Master of Science were earliest conferred, the degree of Doctor of Philosophy being offered for the first time in 1875. Changes made in studies in 1877-1878 had an important bearing on graduate work at the University. This was due to the multiplication of electives and the introduction of the credit system. The seminary method of instruction began then to assume considerable proportions and the movement was strengthened by a growing demand for better trained teachers.

In the spring of 1892 a Graduate School was organized in connection with the College of Literature, Science, and the Arts. Thus provision was made for a more systematic and efficient administration of advanced work, and, so far as possible, for the separate instruction of graduate students.

In the fall of 1912 the Graduate School was recognized so as to include graduate work in all Schools and Colleges of the University. The management of the Graduate School is vested in an Executive Board, including the President and the Dean of the School, and eight others so appointed, two each year for terms of four years, as to represent the different important fields of study.

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## ADMISSION AND REGISTRATION

### ADMISSION

The privileges of the Graduate School are open to graduates of any School or College of this University requiring a four-year course for graduation, and to graduates of other universities and colleges of recognized standing who are qualified to pursue with profit the

advanced courses of study offered in the University. *But admission to study in the School does not imply necessarily admission to candidacy for a degree.*

Graduates of other institutions whose course of study is not substantially equivalent to that prescribed at this University are required to do an additional amount of undergraduate work before being admitted to formal candidacy for an advanced degree.

For information in regard to enrollment for graduate study in the Summer Session, see page 658.

### REGISTRATION

Every applicant for admission to the Graduate School must present himself with his credentials to the Dean. These credentials should specify the degree he has obtained, the course he has completed leading to his bachelor's degree, the scholarship grades or marks attained or received in each course, and the basis of the grading or marking in force in said institution.

All students in the Graduate School, *whether registered in a previous year or not*, are required to register with the Dean at the beginning of each year of residence. *Such registration must be made at the beginning of the year to insure recognition that the residence requirement has been met.*

Blanks showing the course of study the student is pursuing must be filed at the beginning of *each semester or Summer Session at the office of the Graduate School.*

Students may register in the Graduate School at any time up to and including the first Saturday of the semester. *After this day students may register only with permission of the Dean and upon payment of an additional fee of \$5.00.* This fee may, in special cases of enforced absence or illness, be remitted upon application to the Dean of the School.

Undergraduates of the University, who at the beginning of a given semester are within three hours, or at the beginning of a Summer Session within two hours, of graduation, may be permitted to register in the Graduate School and have that semester or Summer Session counted toward the residence requirement for a higher degree. Such students must pay the fees required in the undergraduate College or School in which they are primarily registered.

Students who finish the undergraduate course of this University at the end of the first semester and who continue their residence for the remainder of the year, are permitted to register in the School and thus secure the privilege of its membership, even though the bachelor's degree is not conferred until the close of the year.

Applicants who do not wish to become candidates for a degree, may be admitted and registered as special graduate students. Such graduate students must designate, and have approved by the Dean, the general lines of study which they wish to pursue. Students hav-



ing a bachelor's degree but wishing only to complete preparation for admission to a professional school, are not admitted to the Graduate School. They should enroll in the College of Literature, Science, and the Arts.

Students who withdraw from the School during the academic year are requested to inform the office without delay of such withdrawal.

Changes of subjects originally selected must be reported to the Dean for approval.

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## **FELLOWSHIPS AND SCHOLARSHIPS**

About thirty-five fellowships and scholarships are open to students in the Graduate School. Appointment is for a term of one year, but appointees are eligible for reappointment. Fellows and Scholars do not pay the usual annual fee, but other fees, the matriculation fee (if not already paid), the diploma fee, and special charges for laboratory expenses, are required. No appointee is required to render any service to the University other than that involved directly in the responsibilities of the scholarship or fellowship assigned.

A distinction is now drawn between fellowships and scholarships, the former, besides carrying the larger stipends, being assigned to the students of more experience and more clearly proved ability and independence in graduate study and research. The purpose is to make the position of Fellow one of special importance and responsibility.

### **THE UNIVERSITY FUND**

A limited number of fellowships, known as the University Fellowships, generally ranging according to circumstances from four hundred to six hundred dollars, and scholarships from one hundred fifty to five hundred dollars, is maintained by special appropriation made annually by the Regents of the University. Properly qualified students from any college or university or from any part of the world may apply for appointment.

### **THE STATE COLLEGE FUND**

By action of the Board of Regents each of the faculties of the accredited colleges of the State of Michigan is authorized to nominate each year to the administrative officers of the Graduate School some member of the graduating class or some one of their graduates of not more than four years standing as a suitable candidate for a State College fellowship or scholarship. An alternate may also be nominated in each instance. All nominations for 1925-1926 should be sent to the Dean of the Graduate School not later than March 15, 1925, and accompanying each should be an official record of the

candidate's undergraduate course and several letters of testimony and recommendation.

From the whole number, nominated as above, commonly six or seven will be chosen and recommended to the Regents for appointment. It is foreseen that in most instances the appointments will be to scholarships and that the stipends will vary from three hundred to five hundred dollars. The State College appointees, it should be understood, will be placed on the same footing and be subject to the same regulations and enjoy the same privileges as the University appointees.

### **SPECIAL FELLOWSHIPS**

For special fellowships open to students enrolled in the Graduate School, see page 118.

### **GRADUATE STUDIES**

Students entering the Graduate School should realize that, so far as possible, it is desirable that their studies be free from the methods and restraints of undergraduate work. Administrative machinery cannot be wholly dispensed with; certain purposes of graduate study and certain ideas of the graduate degrees must be maintained; but students in the School and the officers of instruction and administration must persistently work together to develop a spirit of genuine interest and independence in graduate study and so to replace mere formal requirements and the technical satisfaction of these with positive effort and achievement.

In selection of their studies students should take counsel with those competent to give it. They should remember that it is the purpose and duty of the Graduate School to supplement professionalism and its specialism with breadth and independence and so to develop a creative and progressive instead of only a momentarily profitable or marketable efficiency.

The terms, major and minor, so long in vogue, have been discarded from the School's vocabulary. Every student must have his subject of specialization and, while as a rule he may not confine his studies to the single department concerned with this subject, he is expected to take only such courses in other departments as are cognate and important to it. Thus Chemistry, as "major," and Public Speaking and Russian, as "minors," do not make a satisfactory combination; they would serve the School's best purposes no better than studies wholly narrowed to Chemistry or to either of the other fields; but Chemistry and Physics and either Mathematics and Metaphysics or Education and Sociology and Political Science, with proper selection of the individual courses, do make a satisfactory combination.

A graduate student, finally, must realize that his interest, whether involving a higher degree or not, must be in certain attainment and ability with reference to some specific purpose and that such attainment and ability must not be compromised with impertinent or only distantly pertinent courses desired by him for some other purpose.

### SPECIAL CURRICULA

**SOCIAL SERVICE.** — By recent action of the Regents of the University a special curriculum for the training of social workers has been authorized and provision has been made for the granting of the degree of Master of Arts to those who, admitted to the Graduate School, have completed the required amount of work. In addition to the necessary reading and class work a considerable amount of field work in Ann Arbor and Detroit will be expected. Detailed information will be given in a special bulletin to be had on application.

**OTHER SPECIAL CURRICULA.**—In many other subjects, notably in Chemistry, Forestry, Landscape Design, Municipal Administration, and Public Health, special curricula have been arranged. Information by letter or by special published bulletin can be had on application to the Dean.

**COURSES IN EDUCATION FOR TEACHERS.** — It often happens that students, seeking the master's degree and fitting themselves to be well informed and proficient as teachers in certain fields, wish to take certain courses in Education, in part that they may become acquainted with principles and methods of teaching or of school organization and administration, in part that they may be prepared for appointment to principalships or superintendencies. It is the desire of the Graduate School to cooperate with all students so disposed, but students should recognize that, as a rule, unless Education is their chosen subject of specialization, only such courses in Education, one in each case, as pertain directly to their subject of specialization, the so-called teachers' courses, for example, in Latin or in Mathematics, may ordinarily be included within the accredited work for a degree. Students wishing additional courses should expect to give extra time, perhaps a Summer Session, to them. To this general rule, however, exceptions may be made with allowance of from four to six hours in Education, provided the undergraduate preparation as to quality and subject-matter seems in the opinion of the Dean and of the department of specialization to justify such variation from the rule. A master's degree is conceived as meaning certain attainment in some chosen subject and at least a year's work is devoted to this and to directly related fields.

### DEGREES CONFERRED

The degrees conferred on the completion of approved courses of study in the Graduate School are Master of Arts, Master of Science, Master of Arts (or Master of Science) in Municipal Administration, Master of Science in Chemistry, Master of Science in Forestry, Master of Landscape Design, Master of Science in Engineering, Master of Science in Architecture, Master of Science in Public Health, Mechanical Engineer, Civil Engineer, Electrical Engineer, Chemical En-

gineer, Marine Engineer, Aeronautical Engineer, Architect, Naval Architect, Doctor of Philosophy, Doctor of Science, and Doctor of Public Health.

### **THE MASTERS' DEGREES—A.M., M.S.**

A student who has been admitted to study for the master's degree may be recommended for the degree after one year of resident study at this University, provided that the year has been spent in taking full work in studies of graduate grade, that these studies show unity of interest, and that a satisfactory record has been made.

The degree of Master of Arts is the degree usually conferred, though candidates who pursue scientific studies may at their option receive the degree of Master of Science.

The work done in residence is mainly in courses of study regularly announced, but private work is often undertaken under special direction.

In fields of study where laboratory or clinic is involved, students must not expect a degree for mere technical experience and proficiency, whatever be the time given to these. Fundamental science and in most cases a publishable thesis will also be required.

A student who has received the bachelor's degree from a college not of sufficiently high standing, or who has not previously taken such courses as are required in preparation for graduate work, must expect to spend more than one year in residence, the length of time to be determined in each case by the character of his previous work and the quality of his work in this School.

All graduate students taking regularly announced courses of study are expected to attend the examinations given in such courses.

### **MASTER OF ARTS OR MASTER OF SCIENCE IN MUNICIPAL ADMINISTRATION—A.M., M.S.**

Candidates for the degree of Master of Arts (or Master of Science) in Municipal Administration must possess the bachelor's degree. The course of instruction covers at least one academic year, together with at least three months in specified work in the field. It is expected that all who enroll for the degree should have had courses in elementary Political Science and Economics, each equivalent to six semester hours of work. While a few of the courses may be taken during the Summer Session, most of them are given only during the regular academic year. All candidates for the degree are subject to the general rules and regulation of the Graduate School.

For detailed information as to the course requirements, see the bulletins of the Graduate School.

**MASTER OF SCIENCE IN CHEMISTRY—M.S. (CHEM.)**

In 1919 the Regents, at the request of the Department of Chemistry and on recommendation of the Executive Board of the Graduate School, voted to establish the special degree of Master of Science in Chemistry. All candidates must have met the requirements of the University for the degree of Bachelor of Science in Chemistry and for appointment to the degree must have completed successfully a full academic year of graduate study in approved courses in Chemistry and cognate subjects.

**MASTER OF SCIENCE IN FORESTRY—M.S.F.**

The work of candidates for the degree of Master of Science in Forestry is under the immediate supervision of the professor of Forestry and consists mainly of prescribed courses. The department of Forestry publishes annually a special bulletin which contains full information concerning the work leading to this advanced degree.

Candidates for the degree of Master of Science in Forestry may be conveniently divided into three classes:—

1. Graduates of this University, who have received either the degree of Bachelor of Arts or Bachelor of Science and have completed the courses prescribed for the first four years by the department of Forestry. Such students are usually permitted to complete the requirements for the master's degree in one year.
2. Graduates of this University and of other institutions of recognized standing, who have successfully pursued courses in general science approximately equivalent to those prescribed for the first four years, are required to spend two years in residence in order to obtain the master's degree.
3. Graduates of this University and of other colleges and universities of approved standing, whose preparation is deficient in some of the important required course, notably in botany and in other natural history subjects, are required to spend a longer period in order to satisfy the requirement for the degree of Master of Science in Forestry. This period will depend upon the preparation and ability of the student.

Candidates for the degree of Master of Science in Forestry are subject to the same regulations as candidates for the degree of Master of Arts or Master of Science.

**MASTER OF LANDSCAPE DESIGN—M.L.D.**

Graduates of this University with the degree of Bachelor of Landscape Design will receive the degree of Master of Landscape Design upon the successful completion of the requirements for the

same. The graduate work in Landscape Design consists largely of prescribed courses and may, in general, be completed in one year. A special bulletin giving full description of courses in Landscape Design may be had upon application to the Secretary of the University.

### **MASTER OF SCIENCE IN ENGINEERING—M.S.**

All students wishing to study for an advanced degree in Engineering must have received the bachelor's degree from this University, or from some other university or technical school of recognized standing. According to the previous training in engineering studies, two classes of students may be distinguished.

#### **A**

A graduate from the Colleges of Engineering and Architecture of this University or from a technical school of recognized standing who wishes to continue his work in the same branch of engineering or architectural study in which he has received the corresponding bachelor's degree, will find it possible to complete the work required for the master's degree in one year, provided his work proves to be of superior grade.

#### **B**

A graduate whose training in Engineering has not been equivalent to the courses offered by the Colleges of Engineering and Architecture of this University must expect to spend more than one year in the Graduate School before he will be allowed to receive his degree. The length of time varies with the previous attainments of the student and the character of his work. Unless previously completed, the equivalent of the following undergraduate curricula must be taken by the student before being admitted as a candidate for the degree of Master of Science in Engineering: the English, Foreign Language, Mathematics, Physics, Chemistry, Descriptive Geometry, and Engineering Mechanics required of all students except architects in the College of Engineering, and in addition at least fifteen hours of the fundamental technical requirements of the group in which he desires to specialize.

A student presenting the minimum requirement must spend at least two years on an approved course of study and complete it with more than average standing.

Should a student be required to take more than a year's work from the undergraduate course above mentioned, he will not be allowed to enter the Graduate School, but must enroll in the College of Engineering.

Candidates for the degree of Master of Science in Engineering are subject to all the general regulations for the master's degree (see page 651. In addition, they are required to write a satisfactory thesis.

### **MASTER OF SCIENCE IN ARCHITECTURE—M.S.**

All students wishing to study for the degree of Master of Science in Architecture must hold the corresponding bachelor's degree from this University or some other institution of recognized standing. The graduate work must be of advanced character, a thesis in the design and construction of some building being required in the second semester of the graduate year.

All students in this course are subject to the general regulations of the Graduate School. (See pages 647 and 651.)

### **MASTER OF SCIENCE IN PUBLIC HEALTH—M.S.**

Candidates for the degree of Master of Science in Public Health must possess the degree of Bachelor of Arts or Bachelor of Science or Doctor of Medicine. The length of time required will vary, depending on the specific preparation of those who apply, the minimum time to be spent at the University for the master's degree being one year; for the doctorate, two years. Three months of practical experience in the field, followed by a satisfactory report, will be required also. While residence during a summer session will sometimes be accepted, students must not expect to receive the master's degree by summer residence alone. Many of the fundamental courses are given only in the regular academic year, October to June. At the close of the course a diploma of Master of Science in Public Health will be given to all who successfully complete their courses and show fitness for work in public health. The moral character of the applicants for the degree must be shown to be above question.

All candidates for the above degree are subject to the rules and regulations of the Graduate School. (See pages 647 and 651.)

### **THE ENGINEER'S DEGREE**

Civil Engineer — C.E.; Mechanical Engineer — M.E.; Electrical Engineer — E.E.; Chemical Engineer — Ch.E.; Naval Architect — Nav. Arch.; Marine Engineer — Mar.E.; Aeronautical Engineer — Ae.E.; Architect — Arch.

These advanced degrees will be conferred only upon persons who have proved their ability to plan and direct professional work or original investigation in applied science.

A candidate for any of these degrees must have received a bachelor's degree from an approved college at least five years before registration for the advanced degree. He must have been engaged in professional work, in responsible charge of the same for at least one year, and must present at the time of registration a detailed account of his professional experience at that time, which must be approved by the Executive Board after consultation with the committee appointed by the Dean.

He must have pursued before receiving the degree an amount of advanced study equivalent to at least one year's work at the University. This work must have been performed under the direction of a special committee, or be approved by such a committee. Those who have received the degree of Master of Science in Engineering from this School may be excused from part of the advanced study required, in case the work done for the master's degree is, in the opinion of the committee, acceptable towards the higher degree.

He must also present a satisfactory thesis giving evidence of his professional attainments and his fitness to receive the degree sought.

A copy of the thesis must be in the hands of the Dean not later than May 1, if the candidate wishes to receive his degree at Commencement. Candidates for these degrees usually register in absentia (for fees, see page 659).

### THE DOCTOR'S DEGREES—Ph.D., Sc.D.

The doctor's degree is conferred solely in recognition of marked ability and scholarship in some relatively broad field of knowledge such as the Ancient Languages, Philosophy, History, Political Science, Physics, Chemistry, etc. For this purpose the student will be required to work under the direction of a special committee. A portion of the work consists in pursuing regularly announced graduate courses of instruction in the chosen subject, and in such cognate subjects as may be selected by the student and approved by the committee. However, the principal method of developing a mastery of the subject consists in pursuing independent research work in some sub-division of the selected subject, and the scholarly presentation of the result of such investigation in the form of a dissertation.

No definite term of required residence can be specified. As a rule, three years of graduate study are necessary, the last two semesters of which must be spent at this University. Credit may be allowed for graduate courses taken in other universities of recognized standing. Exceptions to the rule requiring three years of graduate study may be made only with the permission of the Executive Board upon special application.

A student wishing to become an applicant for the doctor's degree should first confer with the professor representing the subject of specialization, and then with the Dean. Admitted to study, he will work under supervision of a specially appointed committee. Admission to study, however, does not imply formal admission to candidacy.

A student wishing to become a candidate for the doctor's degree must make formal application to be so enrolled at least two semesters prior to the time for presenting himself for examination. At this time the subject of the dissertation must be chosen and approved by the committee concerned.



No student shall be registered as a candidate for the doctor's degree until he has done one year of satisfactory graduate work in the Graduate School of this or some other university of recognized standing.

No student will be accepted as a candidate for the doctor's degree who has not a knowledge of French and German sufficient for purposes of research.

The degree of Doctor of Philosophy is the one usually conferred, though candidates who pursue studies along scientific lines may at their option receive the degree of Doctor of Science.

### DOCTOR OF PUBLIC HEALTH—D.P.H.

Candidates for the degree of Doctor of Public Health must possess the degree of Bachelor of Arts or Bachelor of Science or Doctor of Medicine. Their first year's course is identical with that prescribed for the degree of Master of Science in Public Health. The second year's work must be spent in research work in one or more of these subjects, with the presentation of a dissertation containing original work of sufficient merit, which must be passed upon by and defended before all the members of the faculty concerned in the giving of the courses. Three years will often be necessary. A portion of the prescribed work may be taken elsewhere, but the right to do this must be left with the special committee in charge of the candidate's work.

A special bulletin describing in detail the courses and requirements in Public Health may be had on application to the Dean.

### THE DOCTOR'S DISSERTATION

The dissertation must exhibit creditable literary workmanship, but its acceptance depends more upon its subject-matter than upon its rhetorical qualities. It must be an actual contribution to knowledge and must be founded upon the author's own investigations carried on under the direction of his committee. The treatment should be as concise as the nature of the subject permits. Every dissertation should contain a clear introductory statement of the problem investigated, and likewise a final résumé of results. It should be preceded by an analytical table of contents, with page references, and a full list of the authorities consulted. The larger divisions and the more important minor divisions should be indicated by suitable headings. It is expected that the preparation of a suitable dissertation will require the greater part of an academic year.

*The dissertation must be completed and at least one typewritten, bound copy placed in the hands of the Dean of the Graduate School as early as the first of May of the year in which the candidate expects to take the degree. This copy will remain on file in the office of the Graduate School. A duplicate copy is often desirable, greatly facilitating the work of the examiners. If the examination of the candi-*

date is to take place on some other date than in the month of June the dissertation must be in the hands of the Dean at least one month before the candidate can present himself for examination.

Every candidate for the degree of Doctor of Philosophy, Doctor of Science, or Doctor of Public Health, in case of the acceptance of his dissertation, is required to have the dissertation printed in full or in part, as may be approved by the responsible committee. To guarantee the printing of the dissertation, he is required to deposit with the Treasurer of the University, between the date of the acceptance of the dissertation and the time fixed for his examination, the sum of fifty dollars. This deposit will be returned to him in case of failure to pass his examination, or whenever he shall cause his dissertation to be printed at his own expense, or shall have it published in a form and under auspices approved by the responsible committee. The candidate is required to deposit one hundred fifty copies of the printed dissertation in the University library, these copies to be used for exchange with other universities. Provision has been made, however, that in case where this requirement would work a hardship, it may be waived on recommendation of the candidate's committee.

In the printing of this dissertation at his own expense the candidate will be expected to use good, substantial paper, and slightly typography. A page four inches by six, with outside margins of at least one inch, is recommended. The dissertation must be bound with cover and title-page, and the latter, in addition to the title and name of the author, must bear the following inscription: A dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy (or of Science, or of Public Health), in the University of Michigan.

### **EXAMINATIONS**

All graduate students in attendance upon regular courses in which stated examinations are held, whether during the semester or at its end, are required to take these examinations with the classes concerned.

No final examinations for the master's degree will be required unless demanded by the department in which the student specializes.

The final examinations of candidates for the doctor's degrees are commonly held during the first part of June; but the examinations can usually be arranged at any time when a candidate has fulfilled all the technical requirements and has satisfied his committee and the Dean that his work has been such as to warrant an examination.

After the candidate has completed all work except the dissertation he may be given a preliminary examination covering this work. In this case the final examination will be on the subject of the dissertation only.

Ordinarily the examinations are oral, and in each case they are held before those comprising the special committee in charge of the candidate's work and before such others as may be appointed by the Dean. The examination may be preceded by such written and oral tests as individual instructors consider necessary.

### WORK IN ABSENTIA

As a rule, work *in absentia* is not permitted, but a student who has practically completed the work required for a degree, may be allowed to continue his studies for the degree without further residence at the University, on such conditions as the Executive Board may determine in each case. *In the case of the master's degree this privilege is restricted to graduates of this University.* Candidates who find it necessary to complete a portion of their work *in absentia* are required to petition the Executive Board through the Dean for such privilege, and if the petition be granted, they must register *in absentia* and keep the Dean informed of their continued connection with the School and of the progress of their work.

Candidates for the engineer's degrees who have completed the graduate work required for the degree usually complete the thesis *in absentia*.

### RULES GOVERNING PARTICIPATION IN PUBLIC ACTIVITIES

For the rules governing participation in public activities, see page 115.

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### SUMMER SESSION

Graduate students who are regularly matriculated in the University may carry on work during the Summer Session which will count toward an advanced degree. Graduates of other universities or colleges of similar standing, who are competent to enroll for a higher degree, may, upon the payment of a fee of \$37 for men, \$35.50 for women, matriculate in the University and begin graduate study during the Summer Session. This fee includes the regular matriculation fee and the fee for the current Summer Session.

Candidates for the master's degree, if graduates of the University of Michigan, may receive the degree after attendance upon three Summer Sessions at this University, supplemented by satisfactory work done *in absentia* under proper direction.

Graduates of other institutions, who have been admitted to candidacy for the master's degree, may be recommended for the degree after attendance for two Summer Sessions and a semester or after attendance for four Summer Sessions.

Full information concerning graduate courses in the Summer Session may be found in the Announcement of the Summer Session. This Announcement may be obtained from the Dean of the Graduate School.

## FEES AND EXPENSES

*The Matriculation Fee and the Annual Fee must be paid in advance. For the rules governing the Second Semester fees and the refunding of fees, see page 136.*

**MATRICULATION FEE.**—For Michigan students, \$10; for all others, \$25.

**ANNUAL FEE.**—For Michigan students, men, \$85; women, \$80; for others, men, \$110; women, \$105. The annual fee required of all graduates who are granted the privilege of pursuing studies for an advanced degree *in absentia* is \$25.

**SUMMER SESSION.**—For matriculates, men, \$32; women, \$32.50; for non-matriculates, men, \$37; women, \$35.

**PART-TIME FEE.**—Persons whose occupations are such as to afford them only a limited part of their time for study, but who are duly accredited for admission to any College or School of the University and who also give evidence of an interest in study wholly accordant with the purpose of the College or School to which they are accredited, may be admitted and may elect not more than five hours in any semester upon the payment of an annual fee of \$25.

Such students, if entering the University for the first time, must also pay the usual matriculation fee and they must understand that the part-time fee of \$25 covers only the usual privileges of study and tuition. Michigan Union or Women's League membership, Athletics, and Health Service are not included.

Students who have completed all the required course work, but who must still finish their dissertations, should register in the Graduate School as part-time students, on the payment of the fee of \$25 per year.

**INSTRUCTORS, FELLOWS, AND SCHOLARS.**—Instructors and others of rank above instructor, if regularly enrolled as students in the Graduate School, and Fellows and Scholars in the Graduate School are exempt from payment of the usual annual fees, but are expected to pay the matriculation fee and such other fees mentioned here as accord with the conditions of their enrollment.

**GRADUATION FEE.**—For all alike, \$10.

Any student who withdraws not more than two weeks after his registration shall be entitled to a refund of his entire annual fee, together with the matriculation fee.

A student who withdraws more than two weeks and less than eight weeks after registration is entitled to a refund of one-half his annual fee.

A student who withdraws more than eight weeks after the beginning and not later than the end of the first semester is entitled to a refund of 40% of his annual fee.

A student who registers at the beginning of the second semester is required to pay 60% of the prescribed annual fee.

No refund or reduction of the matriculation fee is made, except in case of those withdrawing within the first two weeks after registration. To secure refund the student must return his original receipt from the Treasurer.

For other information, see page 138.

# Summer Session

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*A Special Announcement of the Summer Session, containing further particulars than are given here in regard to the courses of instruction, etc., is published annually. Copies of this Announcement may be obtained by addressing Mr. Shirley W. Smith, Secretary of the University.*

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In the Summer Session of the University, courses of instruction are offered in the College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, the Medical School, the Law School, the School of Education, the College of Pharmacy, and the Graduate School. The College of Dental Surgery offers those parts of the regular curriculum in Dentistry which are taught in the College of Literature, Science, and the Arts and the Medical School, consisting of courses in Chemistry, Physics, and Anatomy. The University also conducts courses in Library Methods, in Embalming and Sanitary Science, and in Public Health Nursing, and maintains an Engineering Camp and Biological Station at Douglas Lake, in Cheboygan County, Michigan, and a Field Camp for Geology and Geography in Southern Kentucky.

While these courses are, for the most part, equivalent in every respect to the courses given during the Academic Session, special advantages are offered to advanced and graduate students.

The Administration of the Summer Session of 1924 is in charge of EDWARD H. KRAUS, Dean, and THOMAS E. RANKIN, Secretary, and the following: ARTHUR G. HALL, Registrar, College of Literature, Science, and the Arts; LOUIS A. HOPKINS, Colleges of Engineering and Architecture; HUGH CABOT, Dean of the Medical School; GROVER C. GRISMORE, Law School; CLIFFORD C. GLOVER, College of Pharmacy; ALFRED H. LLOYD, Dean of the Graduate School; CLARENCE T. JOHNSTON, Director of Camp Davis; GEORGE R. LARUE, Director of the Biological Station; and GEORGE M. EHLERS, Director of the Field Camp for Geology and Geography.

In the summer of 1924 the session will open Monday, June 23, and continue for eight weeks, except in the Medical and Law Schools. The session in the Medical School is six weeks in length. In the Law School the session will open on Tuesday, June 17, and will continue for ten weeks.

## REQUIREMENTS FOR ADMISSION

There are no formal requirements for admission to the Summer Session; its courses are open to all persons qualified to pursue them to advantage. Students who have been dismissed from this University or any collegiate institution will not be allowed to enter the Summer Session without the consent of the Dean of the School or College to which they apply for admission. Students dismissed from the College of Literature, Science, and the Arts will be admitted only after formal reinstatement by the Administrative Board.

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## REGISTRATION

In order to facilitate arrangements for the accommodation of prospective students, it is urged that all persons contemplating work in the Summer Session should notify the Secretary on or before June 16. The offices of the University Treasurer and of the several Secretaries will be open for the registration of students on Friday and Saturday, June 20 and 21. So far as possible, it is expected that all students will arrange to reach Ann Arbor by June 21, in order to secure rooms and to register.

Students desiring to pursue courses in law are requested to register on June 13 and 14, as the work in that School begins on June 17.

To register, the student must enroll with the Secretary of the School or College in which he wishes to pursue studies, and pay his fees to the Treasurer. No student will be admitted to classes in any School or College except upon presentation of the Treasurer's receipt.

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## CREDIT FOR COURSES

Regular students of the University will receive credit toward graduation for work done in courses of University grade, upon passing satisfactory examinations at the close of the season. A record is kept of all University credits earned by students and these credits may be applied toward a degree in case the student becomes, subsequently, a candidate for a degree. The number of hours credit allowed for courses offered in the various Schools and Colleges is indicated in connection with the description of the courses; where no such mention is made no credit is given. Since the work of the Summer Session is equivalent to similar work of the academic year, it is now possible for a student to secure the degree of Bachelor of Arts or Bachelor of Science by attendance upon three academic and three Summer Sessions. Similar reductions in time are also possible in all other colleges or schools excepting the Medical School.

In the College of Literature, Science, and the Arts, and the Colleges of Engineering and Architecture, the maximum amount of credit given for work in any one Summer Session is eight semester hours.

In the College of Literature, Science, and the Arts, a minimum residence of one year, with 30 hours credit, and including the senior year, is required for graduation. Each Summer Session taken subsequent to matriculation counts as one-half a semester toward this requirement.

Requests for further information concerning credits should be addressed to the Secretary of the School or College in which credit is desired.

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## CREDIT CERTIFICATES

Students of the Summer Session who are not matriculated in the University will, upon request, receive certificates of attendance and of work satisfactorily performed. Application for these certificates must be made at least two weeks before the close of the Session.

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## GRADUATE WORK

All graduate courses are open to students who are properly qualified to pursue them. Graduate students who are regularly matriculated in the University and properly registered with the Dean of the Graduate School, may carry on work during the Summer Session which will count toward an advanced degree. (See Matriculation, below.)

Candidates for the master's degree, if graduates of the University of Michigan, may present themselves for examination after attendance upon three Summer Sessions of the University, supplemented by satisfactory work done *in absentia* under the direction of the proper committee. Graduates of other institutions may present themselves for examination for such degree either after attendance upon four Summer Sessions or after two Summer Sessions and one semester's residence in the University.

Candidates for the doctor's degree will find that the Summer Session sometimes offers special opportunities for Research work. Detailed information concerning the requirements for the doctor's degree may be obtained from the Dean of the Graduate School.



## MATRICULATION

Formal admission to the University and payment of a matriculation fee are not required for students of the Summer Session. Those who so desire, however, may be admitted and matriculated upon presentation, to the Dean of the School or College they desire to enter, of proper credentials fully covering the requirements for admission.

Persons desiring to matriculate should mail their credentials to the Dean of the School or College concerned, at least one month before the opening of the Summer Session.

The matriculation fee, which is \$10 for a citizen of Michigan, and \$25 for a person who comes from any other state or country, is paid but once, and entitles the student to the privileges of permanent membership in the University.

Graduates of any reputable college or university, who in the judgment of the Dean of the Graduate School are competent to enroll for a higher degree, may, upon the payment of a fee of \$37 for men, \$35 for women, matriculate in the University and enter upon graduate study during the Summer Session. The fee of \$37 for men, \$35 for women, includes the regular matriculation fee and the fee for the current Summer Session.

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## FEES

The fee for the Summer Session in the College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, the College of Pharmacy, and in the Graduate School, is \$32 for men, \$30.50 for women, regardless of the number of courses taken. The fee will be required of those who wish to attend as visitors, as well as those who wish to do regular work and attend the examinations.

In the Medical School the fee is \$32 for men and \$30.50 for women in the laboratory and demonstration courses, and \$37 for men and \$35.50 for women in clinical courses.

In the Law School the fee is \$39.50 for men, \$38 for women.

In Embalming and Sanitary Science the fee is \$77.00 for men, \$75.00 for women.

For the Biological Station, and for Camp Davis the fee is \$30.

For the Kentucky Camp Field Courses in Geology and Geography the fee is \$40.

The fee for the courses of Athletic Coaches is \$24.50 for men, \$23 for women.

Each student will be required to register in the School or College in which the major part of his work is done, and if he desires to elect work in another School or College in which the fee is higher, he will be required to pay an additional fee of \$5.00 for each course so elected. It is to be understood that in all cases where laboratory or demonstration fees are required, such fees are to be paid in addition to the regular Summer Session fee.

For additional information concerning fees and expenses, see page 134.

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## **COURSES OF INSTRUCTION**

The courses offered for the Summer Session of 1924 are distributed among the colleges and schools of the University as given in detail below.

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### **COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS**

The titles of courses and names of instructors are given at the end of the description of courses in each department. See page 199.

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### **COLLEGES OF ENGINEERING AND ARCHITECTURE**

The titles of courses and names of instructors are given at the end of the description of courses in each department. See page 448.

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### **MEDICAL SCHOOL**

The titles of courses and names of instructors are given at the end of the description of courses in each department. See page 523.

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### **LAW SCHOOL**

For titles of courses and names of instructors see page 561.

## **COLLEGE OF PHARMACY**

For titles of courses and names of instructors see page 572.

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## **COLLEGE OF DENTAL SURGERY**

The College of Dental Surgery offers during the Summer Session those parts of the regular course in dentistry which are taught in the College of Literature, Science, and the Arts, and the Medical School.

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## **SCHOOL OF EDUCATION**

For titles of courses and names of instructors see page 610.

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## **EMBALMING AND SANITARY SCIENCE**

1. Bacteriology and Sanitary Science.
  2. Chemistry. Mr. SCOTT.
  3. Anatomy.
  4. Autopsy Technique. Professor WELLER.
  5. Mortuary and Probate Law. Mr. FARLEY.
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## **HYGIENE AND PUBLIC HEALTH**

### **PUBLIC HEALTH NURSING**

Theoretical Work. Professor BARBARA H. BARTLETT, and others.

### **PHYSICAL EDUCATION**

#### **Courses for Women**

1. General Gymnastics.
2. Corrective Gymnastics for Individual Improvement.
3. Æsthetic Dancing.
4. Tennis, Archery.
5. Swimming.
6. Normal Class in Folk Dancing and Games for Schoolroom and Playground.

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**Courses for Men**

1. General Gymnastics and Physical Training.
2. Corrective Gymnastics.
3. Treatment of Emergencies.
4. Anthropometry.
5. Special Contest Exercises.
6. Tennis Tournament.

The courses for women are conducted by Dr. Margaret Bell;  
those for men by Professor George A. May.

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**LIBRARY METHODS**

1. Introduction to Library Work. *Two hours credit.* Librarian BISHOP, and Mr. GOODRICH.
2. Elements of Cataloguing. *Three hours credit.*
3. Elements of Classification and Ordering. *One hour credit.*
4. Elementary Reference Work. *One hour credit.* Miss GILLETTE.
5. The High School Library. *Two hours credit.*
6. Book Selection and Book Buying, particularly for High Schools and the Smaller Public School Libraries. *One hour credit.*
7. The Collection, Organization, Care, and Use of Current Pamphlet Material, with special reference to Civic Subjects for High School Libraries. *One hour credit.* Miss THOMAS.
8. Select Problems of Library Administration. *Two hours credit.*
9. Book Selection for Children's Rooms and Story Telling.

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**BIOLOGICAL STATION**

**ZOOLOGY**

101. Ichthyology. *Two hours credit.* Mr. HARPER.
103. Limnology. *Four hours credit.* Professor WELCH.
105. Entomology. *Four hours credit.* Professor HUNGERFORD.
107. Ornithology. *Two hours credit.* Dr. BLANCHARD.

109. Advanced Ornithology. *Two hours credit.* Dr. BLANCHARD.  
111. Herpetology and Mammalogy. *Two hours credit.* Mr. HARPER.  
113. Special and Research Work in Zoölogy. Professors LARUE and HUNGERFORD, Dr. BLANCHARD, and Mr. HARPER.

### BOTANY

102. Cryptogamic Botany. *Two hours credit.* Professor NICHOLS.  
102b. Taxonomy of the Bryophytes. *Two hours credit.* Professor NICHOLS.  
104. Sytematic Botany. *Two hours credit.* Assistant Professor EHLERS.  
106. Ecology. *Four hours credit.* Assistant Professor GATES.  
108. Plant Anatomy. *Two hours credit.* Dr. SEIFRIZ.  
110. Advanced Systematic Botany. *Two hours credit.* Assistant Professor EHLERS.  
112. Special and Research Work in Botany. *Two, four, six, or eight hours credit.* Professor NICHOLS, Assistant Professors GATES and EHLERS, and Dr. SEIFRIZ.  
114. Plant Geography. *Two hours credit.* Dr. SEIFRIZ.

# Summary of Students\*

1922-1923

## COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

	Men	Women	Total
Resident Undergraduates .....	3267	1669	4936
Extra Mural Classes .....	240	382	622
Public Health Nursing .....	0	4	4
Total .....	3506	2055	5561

## COLLEGES OF ENGINEERING AND ARCHITECTURE

College of Engineering .....	1692	0	1692
College of Architecture .....	200	20	220
Total .....	1892	20	1912

## MEDICAL SCHOOL

Resident Practitioner .....	1	0	1
Fourth Year Students .....	111	7	118
Third Year Students .....	138	11	149
Second Year Students .....	199	7	206
First Year Students .....	179	11	190
Total .....	628	36	664

## TRAINING SCHOOL FOR NURSES

Fourth Year Students .....	0	35	35
Third Year Students .....	0	47	47
Second Year Students .....	0	67	67
First Year Students .....	0	14	14
Total .....	0	163	163

\* Throughout the summaries, in totalling, deductions have been made for names appearing twice in the items added.

Note that these summaries are for the year 1922-1923; those for the year 1923-1924 will appear in the Register, to be issued later.

**LAW SCHOOL**

	Men	Women	Total
Fourth Year Students .....	4	0	4
Third Year Students .....	108	2	110
Second Year Students .....	119	1	120
First Year Students .....	183	0	183
Special Students .....	6	0	6
Students from Other Colleges .....	6	0	6
Total .....	426	3	429

**COLLEGE OF PHARMACY**

Undergraduates .....	75	13	88
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**COLLEGE OF DENTAL SURGERY**

Fourth Year Students .....	144	0	144
Third Year Students .....	125	1	126
Second Year Students .....	48	0	48
First Year Students .....	78	1	79
Dental Hygienists .....	0	13	13
Total .....	395	15	410

**SCHOOL OF EDUCATION**

Resident Undergraduates .....	91	145	236
Extra Mural Classes .....	147	83	230
Total .....	228	238	466

**• GRADUATE SCHOOL**

Students .....	474	151	625
Net Total, exclusive of Summer Session....	7418	2650	10068

**SUMMER SESSION OF 1922**

College of Literature, Science, and the Arts.....	657	464	1121
Colleges of Engineering and Architecture.....	519	8	527
Medical School .....	215	9	224
Law School .....	179	5	184
College of Pharmacy .....	20	2	22
School of Education .....	148	79	227
Graduate School .....	298	188	486
Total .....	2031	755	2786
Grand Total, net .....	8249	3201	11450

**TOTAL, INCLUDING THE SUMMER SESSION, AFTER  
DEDUCTING FOR NAMES COUNTED TWICE**

	<i>Men</i>	<i>Women</i>	<i>Total</i>
College of Literature, Science, and the Arts.....	3764	2395	6159
Colleges of Engineering and Architecture.....	2023	25	2048
Medical School .....	711	39	750
Training School for Nurses .....	0	163	163
Law School .....	517	6	523
College of Pharmacy .....	85	14	99
College of Dental Surgery .....	395	15	410
School of Education .....	365	290	655
Graduate School .....	688	309	997



## SUMMARY BY STATES\*

	Lit., Sci., and Arts.	Eng. and Arch.	Medicine.	Law.	Pharmacy.	Dental.	Education.	Graduate	Summer Session.	Total
Michigan	3588	1141	470	197	55	256	422	412	1598	7159
Ohio	414	144	88	34	11	20	4	31	236	866
New York	266	145	51	11	3	33	2	19	110	568
Illinois	234	59	17	42	5	2	2	21	119	435
Indiana	194	36	35	27	3	10	10	12	88	369
Pennsylvania	171	56	33	17	2	14	3	14	102	356
New Jersey	61	16	7	3	1	7	2	3	15	103
Iowa	52	7	3	9	—	3	1	5	33	100
Missouri	31	6	3	8	1	—	—	3	27	73
Wisconsin	27	12	6	2	—	—	2	1	27	69
Kentucky	38	10	4	3	—	—	—	1	20	68
Massachusetts	24	13	4	1	—	1	2	1	17	60
Minnesota	29	9	5	3	—	3	1	1	19	60
California	21	12	9	2	1	3	—	5	12	57
Oklahoma	26	7	2	8	—	—	1	—	17	49
Kansas	17	6	2	10	—	—	2	6	14	48
District of Columbia	18	18	2	—	1	—	1	2	12	45
Nebraska	18	3	8	7	—	—	—	—	8	39
West Virginia	11	3	1	2	1	—	2	1	20	37
Colorado	20	7	—	1	—	—	—	6	12	36
Connecticut	15	11	2	2	—	1	—	1	7	35
Washington	14	6	6	2	—	2	2	1	11	34
Montana	21	4	3	4	1	1	—	—	4	33
Texas	13	4	—	3	—	1	—	2	15	31
North Dakota	9	3	2	3	—	3	—	3	7	27
Philippines	4	8	2	—	—	—	—	4	12	23
South Dakota	9	3	2	2	—	1	1	1	5	22
Louisiana	10	2	—	—	—	—	1	3	8	22
Virginia	6	5	3	1	—	—	—	1	7	21
Alabama	6	4	2	1	—	2	—	—	8	20
Florida	8	3	3	1	—	—	—	1	5	18
Tennessee	8	4	2	—	—	—	—	2	3	18
Arizona	8	3	—	2	—	—	1	—	5	16
Georgia	2	2	5	2	—	1	—	2	2	15
Maryland	7	3	2	1	1	—	—	—	1	14
Wyoming	3	5	—	1	1	—	1	1	3	14
North Carolina	3	3	3	1	—	—	—	3	6	13
Maine	5	5	—	—	—	—	—	1	5	12
Porto Rico	3	5	4	—	—	—	—	—	5	12
Arkansas	3	2	1	1	—	—	—	1	5	11
Hawaii	6	2	2	2	—	—	—	—	4	11
Idaho	5	2	2	2	—	—	—	—	1	11
New Mexico	5	1	1	2	—	—	—	1	2	11
Utah	5	2	—	1	—	—	—	—	2	9

\*Throughout the summary by states, for the sake of simplicity, the students in the Nurses Training School have been counted with those of the Medical School.

## SUMMARY BY STATES\*

	Lit., Sci., and Arts.	Eng. and Arch.	Medicine.	Law.	Pharmacy.	Dental.	Education.	Graduate	Summer Session.	Total
New Hampshire	2	—	2	1	—	—	—	3	1	8
Rhode Island	—	2	2	—	—	—	—	3	2	8
Mississippi	3	1	—	1	—	—	—	—	3	7
Oregon	4	2	1	—	—	—	1	—	1	7
Vermont	1	1	2	—	—	—	—	—	3	7
South Carolina	1	—	1	—	—	1	—	1	3	6
Delaware	2	—	—	—	—	—	—	—	—	2
Nevada	—	—	—	—	—	—	—	—	1	1
Virgin Islands	—	—	1	—	—	—	—	—	—	1
China	33	25	6	5	—	—	1	20	56	109
Ontario	48	28	2	1	1	7	1	—	12	88
South Africa	2	6	—	—	—	37	—	—	19	48
Japan	9	3	2	—	—	—	—	10	9	26
India	3	5	—	—	—	—	—	2	9	14
Argentina	—	9	—	—	—	—	—	—	8	10
Bolivia	4	2	—	—	—	—	—	—	—	6
Mexico	2	3	1	—	—	—	—	1	1	6
Colombia	—	3	—	—	—	—	—	1	3	5
British West Indies	1	—	2	—	—	—	—	—	1	3
Korea	1	—	—	—	—	—	—	2	1	3
Quebec	1	1	—	—	—	—	—	1	—	3
Siam	—	3	—	—	—	—	—	1	3	3
Brazil	—	2	—	—	—	—	—	—	1	2
British Columbia	2	—	—	—	—	—	—	—	2	2
Chile	—	2	—	—	—	—	—	—	2	2
Greece	—	2	—	—	—	—	—	—	—	2
Java	1	1	—	—	—	—	—	—	1	2
Rumania	—	2	—	—	—	—	—	—	—	2
Uruguay	—	2	—	—	—	—	—	—	—	2
Alberta	—	1	—	—	—	—	—	—	—	1
Armenia	—	1	—	—	—	—	—	—	—	1
Asia Minor	—	—	1	—	—	—	—	—	1	1
Australia	—	—	—	—	—	1	—	—	—	1
Cuba	—	1	—	—	—	—	—	—	1	1
Manitoba	—	—	1	—	—	—	—	—	—	1
Nicaragua	—	—	1	—	—	—	—	—	1	1
Nova Scotia	—	—	1	—	—	—	—	—	—	1
Peru	—	—	—	—	—	—	—	—	1	1
Russia	—	1	—	—	—	—	—	—	—	1
Saskatchewan	—	—	1	—	—	—	—	—	—	1
Scotland	1	—	—	—	—	—	—	—	—	1
Siberia	—	1	—	—	—	—	—	—	—	1
Spain	—	—	—	—	—	—	—	1	—	1
Sumatra	1	—	—	—	—	—	—	—	—	1
Switzerland	1	—	—	—	—	—	—	—	—	1

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**REGISTER**  
**OF THE**  
**UNIVERSITY OF MICHIGAN**



**1923-1924**

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**ANN ARBOR**  
**PUBLISHED BY THE UNIVERSITY**  
**1924**



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# Calendar

1923-1924 and 1924-1925

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## 1923

- June 19-August 29. Summer Session in the Law School.  
June 25-August 3. Summer Session in the Medical School.  
June 25-August 17. Summer School in all Schools and Colleges except Medicine and Law.  
September 17-21. Examinations for Admission.  
September 18. Registration begins.  
September 25. FIRST SEMESTER BEGINS IN ALL SCHOOLS AND COLLEGES OF THE UNIVERSITY.  
November 29. Holiday, Thanksgiving Day.  
December 14. (Evening) Holiday Vacation begins.

## 1924

- January 3. (Morning) Exercises resumed.  
February 8. (Evening) FIRST SEMESTER CLOSES.  
February 7-9. Examinations for Admission to all the Colleges of the University.  
February 11. SECOND SEMESTER BEGINS.  
February 22. Holiday, Washington's Birthday.  
April 11. (Evening) Spring Recess begins.  
April 22. (Morning) Exercises resumed.  
May 30. Holiday, Memorial Day.  
June 13-14. Class Day Exercises in the several Schools and Colleges.  
June 13-14. Alumni Days.  
June 15. BACCALAUREATE ADDRESS, to be delivered by William Lowe Bryan, Ph.D., LL.D., President of Indiana University.

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June 16.	COMMENCEMENT. The Commencement Oration is to be delivered by Glenn Frank, A.B., Editor of The Century Magazine.
June 17-August 28.	Summer Session in the Law School.
June 23-August 1.	Summer Session in the Medical School.
June 23-August 15.	Summer School in all Schools and Colleges of the University except Medicine and Law.
September 15-19.	Examinations for Admission to all the Colleges of the University.
September 16.	Registration begins.
September 23.	FIRST SEMESTER BEGINS IN ALL SCHOOLS AND COLLEGES OF THE UNIVERSITY.
November 27	Holiday, Thanksgiving Day.
December 19.	(Evening) Holiday Vacation begins.
1925	
January 6:	(Morning) Exercises resumed.
February 6.	(Evening) FIRST SEMESTER CLOSES.
February 5-7.	Examinations for Admission to all the Colleges of the University.
February 9.	SECOND SEMESTER BEGINS.
February 22.	Holiday, Washington's Birthday.
April 10.	(Evening) Spring Recess begins.
April 21.	(Morning) Exercises resumed.
May 30.	Holiday, Memorial Day.
June 15.	COMMENCEMENT.
June 22.	Summer Session begins in all the Schools and Colleges (except Law).
September 14-18.	Examinations for Admission to all the Colleges of the University.
September 22.	FIRST SEMESTER BEGINS IN ALL SCHOOLS AND COLLEGES OF THE UNIVERSITY.

1924

1925

JANUARY

JULY

JANUARY

JULY

FEBRUARY

AUGUST

FEBRUARY

AUGUST

MARCH

SEPTEMBER

MARCH

SEPTEMBER

APRIL

OCTOBER

APRIL

OCTOBER

MAY

NOVEMBER

MAY

NOVEMBER

JUNE

DECEMBER

JUNE

DECEMBER

Days of regular college session are printed in Light face type; Sundays, holidays, and vacation in Dark face.

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PRESIDENT

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HON. FRANK B. LELAND, <i>Detroit</i> .....	Dec. 31, 1923
HON. WILLIAM L. CLEMENTS, <i>Bay City</i> .....	Dec. 31, 1925
HON. JAMES O. MURFIN, <i>Detroit</i> .....	Dec. 31, 1925
HON. BENJAMIN S. HANCHETT, <i>Grand Rapids</i> ..	Dec. 31, 1927
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HON. WALTER H. SAWYER, <i>Hillsdale</i> .....	Dec. 31, 1929
HON. VICTOR M. GORE, <i>Benton Harbor</i> .....	Dec. 31, 1929
HON. JUNIUS E. BEAL, <i>Ann Arbor</i> .....	Dec. 31, 1931
HON. RALPH STONE, <i>Detroit</i> .....	Dec. 31, 1931

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SUPERINTENDENT OF PUBLIC INSTRUCTION

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PHILIP LOUIS SCHENK, A.M., B.D., *Instructor in Rhetoric.*

LLOYD EVANS THATCHER, A.B., *Instructor in Zoölogy.*

IVAN WALTON, A.M., *Instructor in English.*

CHRISTIAN N. WENGER, Ph.D., *Instructor in English.*

GUSTAVE MICHAUD, A.M., *Instructor in Spanish.*

ALBERT LORING CLARK, B.S.E., *Instructor in Mechanism and Drawing.*

- CECIL VIVIAN WICKER, A.M., *Instructor in Rhetoric.*  
JOHN B. CLOPPET, Ph.D., *Instructor in French.*  
WILLIAM FREEMAN GALPIN, Ph.D., *Instructor in English History.*  
MICHAEL DE FILIPPIS, A.M., *Instructor in Romance Languages.*  
HORACE LUNDH OLSON, Ph.D., *Instructor in Mathematics.*  
NELSON WINFRED EDDY, A.M., *Instructor in Romance Languages.*  
NORMAN LEROY WILLEY, A.M., LL.B., *Instructor in Spanish.*  
GRANVILLE D. JONES, A.M., *Instructor in Mathematics.*  
JAMES ALVIN SALLADE, A.B., *Instructor in Mathematics.*  
HIRSH HOOTKINS, Ph.B., *Instructor in Romance Languages.*  
WARNER FORREST PATTERSON, A.M., *Instructor in French.*  
JOHN R. ADAMS, A.M., *Instructor in Rhetoric.*  
LA VERNE HAYES ANDREWS, D.D.S., *Instructor in Prosthetic Technics.*  
CARL RICHARDS BROWN, A.M., *Instructor in Psychology.*  
PAUL DEVOE CAHOW, A.M., *Instructor in Economics.*  
GEORGE C. CONE, A.B., *Instructor in Landscape Design.*  
JEAN PAUL COOLEY, Ph.D., *Instructor in Physics.*  
JAMES MURLE CORK, Ph.D., *Instructor in Physics.*  
LAURA MABEL DAVIS, R.N., *Instructor in Anaesthesia.*  
SHIRLEY ERNEST FIELD, A.M., *Instructor in Mathematics.*  
ALBERT JOHN HALL, D.D.S., *Instructor in Dental Technics.*  
OAKLEY CALVIN JOHNSON, A.M., *Instructor in Rhetoric.*  
NORMAN F. MILLER, B.S., M.D., *Instructor in Obstetrics and Gynecology.*  
FREDERICK CHARLES ODELL, B.S.A., *Instructor in Architectural Drawing.*  
FRANCIS ELLSWORTH ROSS, A.M., *Instructor in Economics.*

34      *Members of the Faculty and Other Officers*

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ERMAN ORCHARD SCOTT, M.S.(Chem.), *Instructor in Dental Metallurgy.*

ERWIN ERNEST DREESE, M.S., *Instructor in Electrical Engineering.*

RUSSELL TALCOTT PURNELL, A.B., *Instructor in French.*

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\*CHARLES SERAPHIN CARRY, A.M., *Instructor in French.*

ELIZABETH CAROLINE CROSBY, Ph.D., *Instructor in Anatomy.*

WILLIAM JAMES MCGILL, M.S., *Instructor in Pharmacy.*

THOMAS ALOYSIUS MCGUIRE, A.M., *Instructor in Modern Languages.*

HARRY ANDREW REA, A.B., *Instructor in Shop Practice.*

ROBERT CARL COLE, B.Pd., A.M., *Instructor in Mechanism and Drawing.*

HAROLD J. MCFARLAN, B.S.E., *Instructor in Surveying.*

LATHROP CARLETON POPE, C.E., *Instructor in Civil Engineering.*

NEWTON SILAS BEMENT, A.M., *Instructor in Spanish.*

CARL LEONARD DAHLSTROM, A.M., *Instructor in English.*

JOHN COLLIN GENIESSE, M.S.E., *Instructor in Chemical Engineering.*

FELIX GUSTAF GUSTAFSON, Ph.D., *Instructor in Botany.*

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\* Died October 27, 1923.

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WALDO MACK ABBOT, A.B., LL.B., *Instructor in Rhetoric.*

STEPHEN STANLEY ATTWOOD, M.S.E., *Instructor in Electrical Engineering.*

JULIO BRUNO LUZUNARIS, B.S., *Instructor in Spanish.*

EDWARD YOUNG, B.S.E., *Instructor in Surveying.*

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CARL FREMONT BRAND, Ph.D., *Instructor in History.*

DETLEV WULF BRONK, M.S., *Instructor in Physics.*

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ARTHUR SCOTT AITON, Ph.D., *Instructor in History.*

ROBERT KENNARD BROWN, D.D.S., *Instructor in Operative Dentistry.*

EDWIN GRANT BURROWS, A.B., *Instructor in Journalism.*

ORMA FITCH BUTLER, Ph.D., *Instructor in Latin, and Curator of Archaeological Collections.*

LOWELL JUILLARD CARR, A.M., *Instructor in Sociology.*

WENDELL MORRIS COATES, A.B., *Instructor in Mathematics.*

WALTER TORRANCE DUNN, A.M., *Instructor in Political Science.*

HERBERT ATHERTON FOWLER, *Instructor in Architectural Design.*

LAWRENCE McKINLEY GOULD, A.M., *Instructor in Geology.*

JOHN GRENNAN, *Instructor in Foundry Practice.*



GEORGE RUDOLPH HERRMANN, Ph.D., M.D., *Instructor in Internal Medicine.*

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HAZEL V. KRAMER, A.B., *Instructor in Roentgenology.*

PHIL LEWIS MARSH, A.B., M.D., *Instructor in Internal Medicine.*

JOHN PURL PARSONS, B.S., M.D., *Instructor in Pediatrics and Infectious Diseases.*

LEWIS STEPHEN RAMSDELL, M.S., *Instructor in Mineralogy.*

LEWIS D. STERN, A.B., M.D., *Instructor in Internal Medicine.*

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FOREST LEE DIMMICK, Ph.D., *Instructor in Psychology.*

RALPH HIRAM DIMOCK, D.D.S., *Instructor in Dental Technics.*

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ADELBERT FORD, A.B., *Instructor in Psychology.*

HERBERT CLAIR GREENLAND, A.M., *Instructor in Rhetoric.*

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GUILLERMO DANIEL HERRERA, B.Pd., *Instructor in Spanish.*

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- LEE OWEN CASE, M.S., *Instructor in General Chemistry.*
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- GEORGE CHANDLER ADIE, M.D., *Instructor in Surgery.*
- WILLIAM HARRISON MACK, A.M., *Instructor in English.*
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- WALTER HENRY STORER, Ph.D., *Instructor in Romance Languages.*
- MELVILLE BIGHAM STOUT, B.S.(E.E.), *Instructor in Electrical Engineering.*
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- GAIL ERNEST DENSMORE, A.B., *Instructor in Public Speaking.*
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- ALVAH RUFUS McLAUGHLIN, A.M., *Instructor in Pharmacology.*
- PAUL GERARD SCHROEDER, A.B., *Instructor in German.*
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- THEOPHILE RAPHAEL, A.M., M.D., *Instructor in Psychiatry.*
- FRANK EDWARD CURTISS, M.D., *Instructor in Surgery.*
- RAYMOND MATHEWS, B.S., *Instructor in Architecture.*

ROBERT ETHELBERT BARNEY, M.D., *Instructor in Dermatology and Syphilology.*

GEORGE MOYER BLEEKMAN, M.S.E., *Instructor in Godesy and Surveying.*

HELEN FRANCES CROCKER, R.N., *Instructor in Physiotherapy.*

HENRY CHARLES ECKSTEIN, Ph.D., *Instructor in Physiological Chemistry.*

LINUS J. FOSTER, M.D., *Instructor in Neurology.*

MARTHA GUERNSEY, Ph.D., *Instructor in Psychology.*

MANLEY ELWOOD IRWIN, A.M., *Instructor in Education.*

JAMES HAROLD MATHEWS, M.D., *Instructor in Otolaryngology.*

JOHN BROOKS MOORE, Ph.D., *Instructor in English.*

ALBERT DARWIN RUEDEMANN, M.D., *Instructor in Ophthalmology.*

WILLIAM RUMPF, A.B., M.D., *Instructor in Obstetrics and Gynecology.*

NED RUDOLPH SMITH, P.D.H., M.D., *Instructor in Neurology.*

WALTER MALCOLM SIMPSON, B.S., *Instructor in Pathology.*

RUTH CECILIA WANSTROM, A.B., M.D., *Instructor in Pathology.*

PRESTON EVERETT JAMES, Ph.D., *Instructor in Geography.*

FRANCIS McLENNON VREELAND, A.M., *Instructor in Sociology.*

FORMAN GEORGE BROWN, A.M., *Instructor in Rhetoric.*

ROBERT BURNETT HALL, A.B., *Instructor in Geography.*

OSCAR BENJAMIN KLEIN, Ph.D., *Instructor in Physics.*

CLEMENT ANDREW SMITH, A.B., *Instructor in Rhetoric.*

NICHOLAS MARK ALTER, M.D., *Instructor in Internal Medicine.*

CARLETON WATSON ANGELL, *Instructor in Freehand Drawing and Painting.*

ADOLPH EDMUND BIGGE, A.B., *Instructor in German.*

GEORGE EDMUND BIGGE, A.M., *Instructor in Economics.*

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- EDISON HENRY CRAMER, A.B., *Instructor in Economics.*
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- LLOYD HAMILTON DONNELL, B.M.E., *Instructor in Engineering Mechanics.*
- BERNARD FRANCIS DOSTAL, A.M., *Instructor in Mathematics.*
- LAFAYETTE FRANCIS DOW, A.M., *Instructor in Romance Languages.*
- ARTHUR LOUIS DUNHAM, Ph.D., *Instructor in European History.*
- ROBERT VANSANT FINNEY, A.B., *Instructor in Romance Languages.*
- EARL EMERY FLEISCHMAN, A.B., *Instructor in Public Speaking.*
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- CARLON RUSSELL HILLS, A.B., M.D., *Instructor in Internal Medicine.*
- WILMER ATKINSON JENKINS, A.M., *Instructor in Mathematics.*
- HOWARD MORRIS LUMSDEN, M.S.F., *Instructor in Forestry.*
- HOWARD BENNETT METTEL, M.D., *Instructor in Pediatrics and Infectious Diseases.*
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- EDWARD FRANCIS OAKES, A.M., *Instructor in English.*
- ALFRED GEORGE PELIKAN, A.B., *Instructor in Drawing.*
- EVERETT ANDREW PIESTER, B.S., *Instructor in Landscape Design.*
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SEAMAN MORLEY SCOTT, A.M., *Instructor in European History.*

WILLIAM SEIFRIZ, Ph.D., *Instructor in Botany.*

FRANK LEE ROY SNYDER, M.D., *Instructor in Surgery.*

WILLIAM MELVILLE STRACHAN, A.M., LL.B., *Instructor in Political Science.*

DONALD LEE TABERN, M.S., *Instructor in Organic Chemistry.*

LLEWELLYN WILLETT WILBURN, A.M., *Instructor in Physical Education.*

HALFRED CHENEY BROWN, A.B., Dr. en Droit, *Instructor in Romance Languages.*

ELSIE LOUISE ERLEY, A.M., *Instructor in Physical Education.*

MELDON ADA EVERETT, *Instructor in Physical Education.*

JOHN WILFORD KENNEDY, M.S.E., *Instructor in Chemical Engineering.*

PAUL MUESCHKE, A.M., *Instructor in English.*

HANUS BERNHARD MUELLER, M.D., *Instructor in Internal Medicine.*

TERENCIO ANIBAL PERALTA, A.B., *Instructor in Romance Languages.*

HELLEN RAMSDELL SHAMBAUGH, A.B., *Instructor in Vocational Education.*

MALCOLM HERMAN SOULE, M.S., *Instructor in Bacteriology.*

MILLER WILLIAMS, A.B., *Instructor in Economics.*

ARTHUR VAN DUREN, Jr., A.B., *Assistant Instructor in German.*

RALPH LEROY BELKNAP, B.S., *Instructor in Geology.*

ELLEN BURDEN STEVENSON, A.B., *Instructor in Geology.*

WALTER AUGUST VER WIEBE, Ph.D., *Instructor in Geology.*

ETHEL McCORMICK, *Instructor in Physical Education.*

DORRANCE STINCHFIELD WHITE, A.M., *Instructor in Latin.*

FRANK CHATFIELD CUTTING, B.S.E., *Instructor in Chemical Engineering.*

CARROLL STOLL DAVENPORT, M.D., *Instructor in Roentgenology.*

**Demonstrators and Teaching Assistants**

GEORGE ROBERT SWAIN, A.M., *Teaching Assistant in Latin, and Technical Expert in Photography.*

WILFRED WILSON, *Teaching Assistant in Music, and Director of the University Band.*

JAMES L. KASSNER, B.Pd., M.S., *Teaching Assistant in General Chemistry.*

GEORGE WILLIAM COLLINS, M.S., *Assistant in Bacteriology, in charge of Food Analysis.*

CATHERINE BORTIC HELLER, B.S.A., *Teaching Assistant in Architectural Drawing.*

ADELAIDE ALICE ADAMS, A.M., *Teaching Assistant in Fine Arts.*

WILLIAM ANDREW ARCHER, A.M., *Assistant in Botany.*

OSCAR ABRAHAM BROWN, A.B., *Teaching Assistant in Public Speaking.*

SARAH CLARKSON, M.S., *Research Assistant in Internal Medicine.*

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HELEN MARY KURTTI, M.S., *Assistant in Psychology.*

HAROLD JUDSON OSTERHOF, M.S., *Teaching Assistant in General Chemistry.*

PAUL HENRY SHERRICK, M.S., *Assistant in Physiological Chemistry.*

ROBERT RAZEY TANNER, M.S., *Teaching Assistant in Analytical Chemistry.*

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44      *Members of the Faculty and Other Officers*

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MARY FOOTE RANDALL, A.B., *Assistant in Zoölogy.*

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HARRY WADE SHIELDS, D.D.S., *Demonstrator of Clinical Dentistry.*

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AMOS CAREY ANDERSON, A.B., *Assistant in Psychology.*

JOHN EDWARD ANDERSON, A.B., *Assistant in Botany.*

MARGARET ELIZABETH ARMSTRONG, Ph.B., M.D., *Research Assistant in Pathology.*

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MAURINE BAMBER, B.S., *Assistant in Zoölogy.*

CLARENCE HARLOW BLANCHARD, A.M., *Assistant in Education.*

THEODORE LISTON BLISS, B.S., *Assistant in Bacteriology.*

GEORGE SYDNEY BUCHANAN, A.B., *Assistant in Geology.*

JOHN CLIFFORD BUGHER, A.B., *Assistant in Bacteriology.*

CHARLES STILWELL CAPP, A.M., *Assistant in Physiology.*

- RUTH CARPENTER CHILD, A.B., *Assistant in English.*
- FORD ELMORE CURTIS, A.B., *Assistant in English.*
- ELMER LOUIS DEGOWIN, A.B., *Assistant in Bacteriology.*
- ROBERT RICHARD DIETERLE, M.D., *Assistant in Psychiatry.*
- WALTER TORRENCE DUNN, A.M., *Assistant in Political Science.*
- KATHERINE A. FELLOWS, *Assistant in Botany.*
- SOUTHARD TOLCHARD FLYNN, A.B., *Assistant in Bacteriology.*
- GERALD WILLIS FOX, A.B., *Assistant in Physics.*
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- JOHN STANLEY GRAY, A.B., *Assistant in Public Speaking.*
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- PETER JOHN KLAPHAACK, A.B., *Assistant in Botany.*
- JOHN KUIPER, A.M., *Assistant in Philosophy.*
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ALEXANDER MASLOW, A.B., *Assistant in Mathematics.*  
HELEN ELIZABETH MASTER, A.B., *Assistant in Rhetoric.*  
DANIEL JACOB MILLER, A.B., *Assistant in Surveying.*  
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VETA THORPE NEBEL, A.M., *Assistant in Rhetoric.*  
THEODORA NELSON, A.B., *Assistant in Zoölogy.*  
HAZEL RUTH PRENTICE, M.S., *Assistant in Internal Medicine.*  
SIGMOND KLUSS PROCTOR, A.B., *Assistant in Astronomy.*  
HOWARD GARNER SCAHILL, A.B., *Assistant in Psychology.*  
FERDINAND RIPLEY SCHEMM, B.S., *Assistant in Pharmacology.*  
THEOPHIL ERNEST SCHMIDT, A.B., *Assistant in Anatomy.*  
FRANCIS AXTELL SCOTT, B.S., *Assistant in Physiology.*  
DEAN CAMPBELL SEITZ, B.S.M.E., *Assistant in Mechanical Engineering.*  
CELIA MARIE SLACK, B.S., *Assistant in Zoölogy.*  
E. RAYMOND SMITH, A.M., *Assistant in Physics.*  
WALTER DENNIS STROTHER, Ph.C., *Assistant in Pharmacy.*  
JOHN ADAMS TAYLOR, A.M., *Assistant in Public Speaking.*  
BURTON DOAN THUMA, B.S., *Assistant in Psychology.*  
E. FORREST WALCOTT, A.B., *Assistant in Political Science.*  
CHARLES WHITE WATERS, A.M., *Assistant in Botany.*  
WILLIAM TAYLOR WATSON, A.B., *Assistant in Journalism.*  
FRANK WHITEHOUSE, A.M., *Research Assistant in Education.*  
CAROLINE GAY WILGUS, A.B., *Assistant in English.*  
ROBERT JOSEPH COOPER, A.B., *Assistant in Physiology.*

**Non-Resident Lectures on Special Topics for 1923-1924**

OSSIAN COLE SIMONDS, C.E., Chicago, Ill., *Lecturer on Landscape Gardening.*

48      *Members of the Faculty and Other Officers*

---

FRANK LEVERETT, B.S., Ann Arbor, *Lecturer on Glacial Geology.*

HENRY STEFFENS, Jr., Detroit, *Lecturer of Political Science.*

LENT DAYTON UPSON, Ph.D., Detroit, *Professorial Lecturer on Political Science.*

STUART APPLETON COURTIS, Ph.D., Detroit, *Lecturer on Education.*

PERCIVAL C. LOWERY, D.D.S., Detroit, *Lecturer on Prosthetic Dentistry.*

LESLIE ANDERSON BUTLER, A.M., Ann Arbor, *Lecturer on Education.*

FRED R. JOHNSON, A.B., LL.B., Detroit, *Lecturer on Sociology.*

NELLIE LOUISE PERKINS, Ph.D., Detroit, *Lecturer on Sociology.*

JOHN ERVIN KIRKPATRICK, Ph.D., *Lecturer on Political Science.*

ROBERT GORDON RODKEY, A.M., *Lecturer on Economics.*

JAMES A. VEASEY, LL.B., *Lecturer on Oil and Gas Mining Law.*

WILLIAM JOHN NORTON, A.B., *Lecturer on Sociology.*

CHARLES E. RIGHTOR, *Lecturer on Political Science.*

PALMER CHRISTIAN, *University Organist.*

ROBERT BRIDGES, D.Litt., LL.D., *Honorary Fellow in Creative Art.*

THOMAS CALLAN HODSON, *Lecturer on Anthropology.*

**Non-Resident Instructors in Summer Session of 1923**

FROM THE UNIVERSITY FACULTY FOR 1922-1923

CARL ORTWIN SAUER, Ph.D., *Professor of Geography, and Director of the Field Courses in Geography and Geology, University of California.*

WILBUR PERE CALHOUN, A.M., *Assistant Professor of Economics.*

RAINARD BENTON ROBBINS, Ph.D., *Assistant Professor of Mathematics.*

WILLIAM HENRY YEATMAN, *Instructor in Shop Practice.*

RAYMOND WALTER BARNARD, M.S., *Instructor in Mathematics and Insurance.*

GEORGE DUNCAN WILNER, A.M., *Instructor in Public Speaking.*

CHARLES STEVENS FAZEL, Ph.D., *Instructor in Physics.*

HARRY C. BARNETT, A.M., *Instructor in Romance Languages.*

HARVEY ALEXANDER SIMMONS, M.S., *Instructor in Mathematics.*

AGAPITO REY, A.M., *Instructor in Romance Languages.*

AMOS HENRY HERSH, Ph.D., *Instructor in Zoölogy.*

EDWARD ARTLEY GEE, A.B., *Instructor in Economics.*

IRVING WATERLOO GREENE, A.B., M.D., *Instructor in Internal Medicine.*

LEON B. SLEATOR, A.M., *Instructor in Psychology.*

FROM OTHER INSTITUTIONS

EARL L. BEDELL, *Instructor in Household Mechanics, Northwestern High School, Detroit.*

JOSEPH WALTER BINGHAM, A.B., J.D., *Professor of Law, Leland Stanford, Jr., University.*

ORVILLE G. BRIM, Ph.D., *Professor of Rural Education, Cornell University.*

THOMAS CALLANDER, A.M., *Professor of Greek, Queen's University.*

KARL TAYLOR COMPTON, Ph.D., *Professor of Physics, Princeton University.*

THOMAS M. DEAM, *Principal High School, Decatur, Illinois.*

GEORGE D. FARLEY, A.B., *Battle Creek; Instructor in Practical Embalming.*

FRANK CALEB GATES, Ph.D., *Assistant Professor of Botany, Kansas State Agricultural College.*

MARGARET T. GATES, *Manhattan, Kansas; Dean of Women at the Biological Station.*

HENRY ALLAN GLEASON, Ph.D., *Assistant Director, Botanical Garden, New York, N. Y.*

EMMA GRATTAN, *Supervisor of Public School Art, Cedar Rapids, Iowa.*

J. PENROSE HARLAND, Ph.D., *Assistant Professor of Greek, University of North Carolina.*

HERBERT BARKER HUNGERFORD, Ph.D., *Professor of Entomology, University of Kansas.*

MABEL HUTCHINGS, *Instructor in Public School Art, Grand Rapids.*

FRANCIS HARPER, A.B., *Instructor in Zoölogy, Cornell University.*

FRANK A. JENSEN, A.M., *Superintendent of Schools, Rockford, Illinois.*

MINNA E. JEWELL, Ph.D., *Assistant Professor of Zoölogy, Milwaukee-Downer College.*

JAMES G. JOHNSON, Ph.D., *Assistant Professor of History, University of Georgia.*

CLARENCE DARWIN KINGSLEY, A.M., *State Inspector of High Schools, Department of Education, Massachusetts.*

AUGUST CHARLES KREY, Ph.D., *Associate Professor of History, University of Minnesota.*

ERVIN EUGENE LEWIS, Ph.D., *Superintendent of Schools, Flint, Michigan.*

GEORGE ELWOOD NICHOLS, Ph.D., *Assistant Professor of Botany, Sheffield Scientific School, Yale University.*

FRANCIS SAMUEL PHILBRICK, LL.B., Ph.D., *Professor of Law, University of Illinois.*

FRANK G. PICKELL, A.M., *Superintendent of Schools, Montclair, New Jersey.*

WILLIAM HENRY PYLE, Ph.D., *Professor of Education, University of Missouri.*

JESSE PERRY ROWE, Ph.D., *Professor of Geology, University of Montana.*

FREDERICK ALBERT SAUNDERS, Ph.D., *Associate Professor of Physics, Harvard University.*

OSCAR D. SKELTON, Ph.D., *Professor of Political and Economic Sciences, Queen's University.*

JEAN PAUL SLUSSER, A.M., New York, N. Y.; *Lecturer on Freehand Drawing and Painting.*

KENNETH G. SMITH, M.E., *State Supervisor of Industrial Education, Lansing.*

CLARENCE STONE YOAKUM, Ph.D., *Associate Professor of Applied Psychology, Carnegie Institute of Technology.*

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HELEN MARTIN, A.M., *Children's Librarian, East Cleveland, Ohio.*

JEAN HAWKINS, B.M., B.L.S., *New York State Library School.*

ARCHIE HAHN, I.L.B., *Instructor in Track Athletics and Athletic Training, Princeton University.*

ADOLPH G. SCHULTZ, *Director of Athletics, University of Detroit.*

**Special Non-Resident Lecturers in Summer Session of 1923**

FREDERICK S. BOAS, LL.D., *Inspector, London County Council, Education Department, London, England.*

BENJAMIN FRANKLIN BUCK, A.B., *Principal, Nicholas Senn High School, Chicago, Illinois.*

ALEXANDER DEAN, *Director of the Little Theater, Dallas, Texas.*

LUCIUS LEE HUBBARD, Ph.D., *Regent of the University.*

HENRY CROCKER HUTCHINS, B.S., *New York, N. Y.*

CHARLES SIMPSON MEEK, *Superintendent of Schools, Toledo, Ohio.*

ANDREW FLEMING WEST, Ph.D., LL.D., *Dean of the Graduate School, Princeton University.*

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- EDITH THOMAS, A.B., *In Charge of Library Extension Service.*
- ELLA MAY HYMANS, A.B., *Senior Cataloguer.*
- GERTRUDE MAGINN, A.B., *Assistant to the Librarian.*
- CONSTANCE MABEL WINCHELL, A.B., *In Charge of Medical Reading Room.*
- CLARE MULLETT, *In Charge of Graduate Reading Room.*
- JEAN SHARPE, A.M., *In Charge of Graduate Reading Room.*
- HENRIETTE SCRANTON, A.B., *In Charge of Graduate Reading Room.*
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- ROSCOE LORING DUNN, A.B., *In Charge of Graduate Reading Room.*
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- REBECCA WILSON, A.B., *Assistant in Main Reading Room.*
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- NINA KATE PRESTON, *Reviser.*
- CATHERINE MARIA CAMPBELL, A.B., *Reviser.*
- WILLIAM RANDALL, A.M., *Assistant Classifier.*
- HILDA RANKIN, *Searcher.*
- ELANA KNOTT TAYLOR, A.M., *In Charge of East Engineering Library.*

MARGARET KIRKPATRICK, A.B., *In Charge of Dental Library.*

VIVIAN BAKER, A.B., *In Charge of Engineering Library.*

MABEL FIDELIA McLOUTH, *In Charge of Chemistry Library.*

THERESA ALVINA GRUBE, B.L., *Head Filer.*

EVELYN HARRIET WALKER, *Cataloger.*

DELLA LUGINBUHL EGLY, A.B., *In Charge of Study Halls.*

LALAH ELSA HUEHL, *Assistant in Library Extension Service.*

EMMA GRACE HOLLAND, *Assistant Order Department.*

NELLIE T. THORNTON, *In Charge of Charging Desk.*

BERTHA LOUIS SHAW, *In Charge of Periodical Room.*

MARIE DONEGAN, *Cataloger.*

KATHLEEN L. BAILEY, *Assistant Secretary to the Librarian.*

EDITH TAYLOR FLEMING, *Junior Assistant Order Department.*

BEATRICE A. SNIDER, A.B., *Accessions Assistant Order Department.*

SYLVIA RALSTON SMITH, A.B., *Cataloger.*

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BLANCHE E. HARROUN, *Assistant Librarian.*

BERTHA CARMAN HERBST, A.B., *Assistant to the Librarian.*

VOLNEY A. CHAPIN, *Assistant.*

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RANDOLPH GREENFIELD ADAMS, Ph.D., *Custodian-Librarian.*

ELSIE NELLIS STEWART, A.B., *Assistant.*

#### **Davis Library of Highway Engineering and Highway Transport**

HARRIET EMILIE LAMBERT, *Librarian in Charge.*

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ALEXANDER GRANT RUTHVEN, Ph.D., *Superintendent of the University Museum and Director of the Museum of Zoölogy.*

HARLEY HARRIS BARTLETT, A.B., *Director of the Botanical Gardens.*

CARL EUGENE GUTHE, Ph.D., *Associate Director of Anthropology in the University Museum.*

LEROY NELSON PATTISON, B.D., A.M., *Assistant Curator of the Alumni Memorial Hall.*

ORLAN WILLIAM BOSTON, M.S., *Acting Director of the Engineering Shops.*

†NORMAN A. WOOD, *Curator of Birds in the Museum of Zoölogy.*

FRANCES JEWITT DUNBAR, A.B., *Assistant in Charge of the Lantern Slide Shop.*

SOBEI IDE, M.D., *Serologist in the University Psychopathic Hospital.*

FREDERICK McMAHON GAIGE, A.B., *Instructor Curator of Entomology in the Museum of Zoölogy.*

LEE RAYMOND DICE, Ph.D., *Instructor Curator of Mammals in the Museum of Zoölogy.*

FRIEDA COBB BLANCHARD, Ph.D., *Assistant Director of the Botanical Gardens.*

CARL LEAVITT HUBBS, A.M., *Instructor Curator of Fishes in the Museum of Zoölogy.*

MINA LOUISE WINSLOW, A.M., *Curator of Mollusks in the Museum of Zoölogy.*

HELEN THOMPSON GAIGE, A.M., *Assistant Curator of Reptiles and Amphibians in the Museum of Zoölogy.*

HENRY JULIUS COLLIAU, *Foreman of Instrument Shop at the Observatory.*

CHARLES LEO MOODY, B.S., *Superintendent of the Nichols Arboretum.*

GEORGE JOHN LUTZ, Jr., *Accountant and Laboratory Attendant in Bacteriology.*

- BURR F. ANDERSON, *Technical Assistant in Roentgenology.*
- FREDERICK JAMES BOLTON, *Technical Assistant in Homoeopathic Laboratories.*
- JOHN BONIN, *Instrument Room Assistant in Surveying.*
- DANIEL J. BORDEN, *Laboratory Attendant in Physiology and Pharmacology.*
- WILLIAM HENRY BUETTNER, *Preparateur in Paleontology.*
- MAY VARNEY CANNON, B.S., *Assistant in the Herbarium.*
- GUSTAVE ADAM RITZ, *Curator of the Physics Laboratory.*
- LAURA ALINE CAKE KERLIKOWSKI, A.B., *Laboratory Technician in Internal Medicine.*
- SOPHIA MARY HARTMAN, *Technical Assistant in Pathology.*
- FRED CARL LUENZER, *Laboratory Attendant in Bacteriology.*
- HARRY FRANKLIN MINKLEY, *Technical Assistant in Roentgenology.*
- ANNA OAKES, *Laboratory Assistant in Serology.*
- MARY JOSEPHINE RUSCHE, *Technical Assistant in Psychiatry.*
- WANDA ANN SEEHAFFER, *Technical Assistant in Pathology.*
- EVANGELINE HELEN SHOEBRIDGE, *Custodian of the Zoölogy Laboratory.*
- LEROY JAMES SMITH, *Technical Assistant in Anatomy.*
- CHARLES H. HALL, *Stock and Dispensing Clerk in the College of Dental Surgery.*
- HAROLD F. PALMER, *Foreman in Dispensing in Chemistry.*
- WESLEY O. JENNINGS, *Technical Assistant in Pathology.*
- ADA LENORA OLSON, A.B., *Assistant in Entomology in the Museum.*
- NUEL E. SMOCK, *Instrument Maker in Astronomy.*
- MARTHA STORER GRIM, *Administrative Assistant in the Museum.*
- MARGARET ANNE AVERY, A.B., *Technical Assistant in the Homoeopathic Laboratory.*

56      *Members of the Faculty and Other Officers*

---

BERT BANTA, *Shop Superintendent, Physics Laboratory.*

GEORGE HAGER BLUM, *Helper in Botany.*

LAURA A. CANNON, A.M., *Assistant in the Herbarium.*

CHARLES BERNARD COE, Jr., B.S.E., *Assistant in Marine Engineering.*

WILLIAM LOUIS CRISTANELLI, *Technical Assistant in Zoölogy.*

EILEEN WHITEHEAD ERLANSON, B.S., *Assistant in the Herbarium.*

ERWIN W. ESSLINGER, *Stockkeeper, Chemical Storehouse.*

JESSIE ANNA FUHRMAN, *Technical Assistant in Pathology.*

GEORGE GLITZERNHIRN, *Instrument Maker, Physics Laboratory.*

CARL ROBERT BRAUN, *Dispensing Assistant in Chemistry.*

BELTON EIDING, *Dispensing Assistant in Chemistry.*

HELEN J. HINCKLEY, R.N., *Assistant in Surgery.*

MARINA LOUISE HOLMES, A.M., *Technical Assistant in Zoölogy.*

PETKO L. IVANOFF, *Dispensing Assistant in Chemistry.*

WILLIAM FRANKLIN JEWELL, *Technical Assistant in Botany.*

HOWARD JAMES KERR, *Technical Assistant in Pathology.*

ACHILLES deKHOTINSKY, *Designer and Instrument Maker, Physics Laboratory.*

LILLIAN M. MUNRO, A.B., *Statistician, Bureau of Educational Reference and Research.*

JOHN HENRY ROBINSON, *Assistant in Pathology.*

HERMAN ROEMER, *Instrument Maker, Physics Laboratory.*

DOROTHY RUMPH, *Assistant in Serology.*

LEO ANTON SCHMIDT, A.B., *Assistant in Accounting.*

LOUISE SKILLEN, *Technical Assistant in Pathology.*

ADRIAN PETER WEZEL, *Head Gardener, Botanical Gardens.*

JACOB JOHN VAN AKKERAN, *Assistant Gardener, Botanical Gardens.*

ALDEN W. VAN BENSCHOTEN, *Dispensing Assistant in Chemistry.*

ERNEST G. WILLOUGHBY, *Storekeeper, Physiological Chemistry.*

LELAND W. WILLOUGHBY, *Dispensing Assistant in Chemistry.*

BRYANT WALKER, A.B., LL.B., Sc.D., Detroit, *Honorary Curator of Mollusca.*

WILLIAM W. NEWCOMB, B.S., M.D., Detroit, *Honorary Curator of Lepidoptera.*

ARTHUR S. PEARSE, Ph.D., Madison, Wis., *Honorary Curator of Crustacea.*

BRADSHAW H. SWALES, LL.M., Grosse Isle, *Honorary Curator of Birds.*

ARTHUR W. ANDREWS, Detroit, *Honorary Curator of Coleoptera.*

E. B. WILLIAMSON, A.B., Bluffton, Ind., *Honorary Curator of Odonata.*

JAMES S. ROGERS, A.M., Gainesville, Fla., *Honorary Curator of Diptera.*

CALVIN GOODRICH, Toledo, O., *Honorary Curator of Mollusca.*

WALTER E. HASTINGS, South Lyons, *Honorary Curator of Birds.*

WILBERT B. HINSDALE, M.S., A.M., M.D., *Custodian of Michigan Archaeology.*

#### **Hospitals**

CHRISTOPHER G. PARNALL, A.B., M.D., *Director of the University Hospital.*

ROBERT GEORGE GREVE, *Business Officer of the University Hospital.*

BARBARA HAECKER BARTLETT, B.S., *Director of Courses in Public Health Nursing.*

JAMES PERRY BRIGGS, Ph.C., *Pharmacist in the University Hospital.*

ALICE LIVIA LAKE, B.S., R.N., *Educational Director, Training School for Nurses.*

- MAGNA C. TILLOTSON, B.S., R.N., *Instructor in the Training School for Nurses.*
- RUTH V. WHELOCK, M.A., R.N., *Instructor in the Training School for Nurses.*
- RUTH KAPITZKY DANIELS, A.B., R.N., *Instructor in the Training School for Nurses.*
- ETHYL M. NEELANDS, R.N., *Instructor in the Training School for Nurses.*
- RUBY C. CARLTON, A.B., *Instructor in Social Service.*
- MARIE VIRGINIA WANZECK, A.B., *Assistant to the Superintendent of Nurses.*
- ELLA ELIZABETH McNEIL, B.S., *Assistant to the Superintendent of Nurses.*
- GERTRUDE JUDD WISHART, R.N., A.B., *Assistant to the Superintendent of Nurses.*
- DOROTHY KETCHAM, A.M., *Director of Social Service.*
- ELMIE WARNER MALLORY, A.M., *Director of Social Service, Psychopathic Hospital.*
- MARION LYDIA CLARK, Ph.D., *Chief Occupational Therapist.*
- DONALD MANLEY MORRILL, B.S., M.D., *Chief Resident Physician.*
- AGNES C. TENNANT, R.N., *Chief Nurse, Psychopathic Hospital.*
- LAWRENCE EDWARD McCAFFREY, M.D., *Resident in Obstetrics and Gynecology.*
- WILLIAM L. BETTISON, B.S., M.D., *Senior Interne in Internal Medicine.*
- NEWTON WARREN BOURNE, B.S., M.D., *Senior Interne in Surgery.*
- EUGENE R. ELZINGA, M.D., *Senior Interne in Surgery.*
- ISADOR HAROLD FRIEDMAN, M.D., *Senior Interne in Internal Medicine.*
- EDWARD P. GILLETTE, M.D., *Senior Interne in Surgery.*
- ANGUS G. GOETZ, M.D., *Senior Interne in Surgery.*
- JOHN LAWRENCE LOOMIS, M.D., *Senior Interne in Surgery.*

- RALPH O. RYCHENER, A.B., M.D., *Senior Interne in Ophthalmology.*
- NOEL FRANKLIN SHAMBAUGH, B.S., M.D., *Senior Interne in Internal Medicine.*
- LESTER MERRIL WIEDER, M.D., *Senior Interne in Dermatology.*
- EDWARD ADOLPH WISHROPP, M.D., *Senior Interne in Pediatrics.*
- PAUL McNARY MOORE, B.S., M.D., *Senior Interne in Pediatrics.*
- EARL CARROLL YATES, M.D., *Senior Interne in Otolaryngology.*
- CLARENCE HARRISON CREGO, Jr., B.S., *Interne in Internal Medicine.*
- PETER H. DARPIN, M.D., *Interne in Surgery.*
- JOHN K. DeVRIES, M.D., *Interne in Surgery.*
- ENOCH WALTER HALL, A.B., M.D., *Interne in Roentgenology.*
- ALBERT C. KERLIKOWSKA, M.D., *Interne in Ophthalmology.*
- JOHN LABADIE, M.D., *Interne in Neurology.*
- JAMES MORTIMER PIERCE, M.D., *Interne in Obstetrics and Gynecology.*
- FREDERICK G. RANSOM, M.D., *Interne in Surgery.*
- HARRY K. RANSOM, M.D., *Interne in Surgery.*
- WILLIAM AXEL SMITH, M.D., *Interne in Neurology.*
- JOHN F. SONDER, M.D., *Interne in Pediatrics.*
- WADE W. STONE, M.D., *Interne in Surgery.*
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- WILLIAM J. MILLS, *Assistant Business Officer.*
- S. MARGARET GILLAM, A.M., *Director of Housekeeping and Dietetics.*
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- HELEN M. BAKER, B.S., *Administrative Dietitian.*
- MARTHA AGATHA KUSTERER, *Secretary to the Superintendent of Nurses.*



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LIEWELLYN WILLETT WILBURN, A.M., *Instructor in Physical Education.*

ELSIE LOUISE ERLEY, A.M., *Instructor in Physical Education.*

MELDON ADA EVERETT, *Instructor in Physical Education.*

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ELIZABETH C. WAGNER, *Bookkeeper, Secretary's Office.*

EDITH JANE SMITH, *Payroll Clerk, Secretary's Office.*

GILBERT HENRY HARRISON, *Diploma Clerk, Secretary's Office.*

LUELLA LILLIAN ZAPATA, *Chief Clerk, Buildings and Grounds Department.*

EUNICE OLA WEISSINGER, *Chief Clerk, Storehouse.*

NATALIE ELIZABETH MURPHY, A.B., *Secretary to the President.*

LUELLA HELEN LAWRENCE, *Private Secretary to the Secretary.*

HORATIA JOSEPHINE CORBIN, A.B., *Secretary to the Dean of the College of Literature, Science, and the Arts.*

ANNA ELIZABETH FISHER, *Secretary to the Dean of the Colleges of Engineering and Architecture.*

MABEL I. PAYNE, A.B., *Secretary to the Dean of the College of Dental Surgery.*

FLORENCE ELIZABETH MOHR, A.B., *Secretary to the Registrar.*

ROSAMOND WILLIS GRANGER, *Secretary to the Dean of Students.*

EMMA B. HOFFSTETTER, *Secretary to the Dean of Women.*

VIDA VAN VLERAH, *Secretary to the Assistant Secretary and Purchasing Agent.*

ADA C. ARNOLD, A.B., *Secretary to the Director of the University Hospital.*

ETHEL M. WHITCHURCH, *Head of the Dictaphone Office.*

AMY G. SCUTT, *Clerk in the College of Architecture.*

RUTH ELIZABETH SHEPARD, A.B., *Clerk in the College of Pharmacy.*

GRACE ELIZABETH DE GRAFF, *Clerk to the Assistant Dean of the College of Literature, Science, and the Arts.*

MARIE GEORGIA OSBORN, *Chief Clerk, Alumni Catalogue Office.*

**BUILDINGS AND GROUNDS**

EDWARD C. PARDON, B.M.E., *Superintendent.*  
FRANK A. ORTMAN, *Construction Superintendent.*  
WARD A. DAVENPORT, *Engineer.*  
THOMAS HOPWOOD, *Chief Engineer.*  
GEORGE J. LUTZ, *Painter Foreman.*  
FRED R. HOUGH, *Electrician Foreman.*  
JAMES M. GALBRAITH, *Plumber Foreman.*  
MERTON V. BROWN, *Carpenter Foreman.*  
HOMER A. MacNAMEE, *Grounds Foreman.*  
ARTHUR E. McCALL, *Janitor Foreman.*  
WILLIAM V. SKOPIL, *Laundry Foreman.*  
FREDERICK B. McDONALD, *Assistant Engineer.*

**BUILDING PROGRAM**

JOHN FREDERICK SHEPARD, Ph.D., *Supervisor of Plans.*  
NORMAN S. FLOOK, B.C.E., *Construction Inspector.*  
EVERETT W. FOLSOM, B.S.E., *Assistant to the Supervisor of Plans.*  
RAYMOND F. HORTON, B.S.(C.E.), *Construction Estimator and Cost Engineer.*

# List of Graduates of 1923\*

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## DEGREES

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### COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS†

#### BACHELOR OF SCIENCE (in Medicine)

Vernon Clifford Abbott	Robert Francis Hague
Max Abramson	John Baxter Hassberger
Robert Huntington Atkins	James Kevin Hazel
*Bennett Franklin Avery	William Kruger
Morris Eugene Bachman	Kenith Smith McIntyre
John Hamlin Besancon	Harold Carl Mack
Francis Isabelino Bloise	Maurice Philip Meyers
George Marion Brown	Galen B. Ohmart
George Millard Childs	Paul Thomas Quarry
Francis Joseph Clark	*Ferdinand Ripley Schemm
Harold D. Crane	Francis Axtell Scott, Jr.
Arthur Covell Curtis	Arthur Harvey Steele
Chester Alfred DeWitt	Alfred Downing Summers
Charles Corydon Eades	Arthur Benjamin Thomas
*George Proudfoot Graybiel	Vincent Joseph Turcotte

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#### BACHELOR OF SCIENCE (in Forestry)

Victor Deland Brooks	Charles Eugene Gillis
Clarence Eugene Daugherty	Stanley S. Locke
Merle Stanley Gerred	*Richard Edwin McArdle
Tacitus P. Gies	Homer Charles Mitchell

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\* The list of Graduates contains the names of all persons on whom degrees were conferred during the year 1923, together with those to whom other diplomas of graduation were granted and those to whom special certificates were issued.

† Those graduates of the College of Literature, Science, and the Arts whose names are preceded by an asterisk (\*) receive their degrees "With Distinction"; those whose names are preceded by a double asterisk (\*\*) receive their degrees "With High Distinction."

Ralph Waldo Muncy  
 Louis Albert Pomerene  
 Robert Whiting Putnam  
 Jonathan Edward Way

Martin Richard Webb  
 Guy Meeker Wilkinson  
 Kenneth Williams

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### **BACHELOR OF SCIENCE** (in Chemistry)

Helen Virginia Glenn  
 \*\*John Carl Pernert

Richard Benjamin Sunderman

3

### **BACHELOR OF SCIENCE**

Dorothy May Adams  
 Victor Roberts Beauchamp  
 Nai Ching Cheng  
 \*\*Paul Gerhard Eickmann  
 Nevin Cotton Fisk  
 John Sanderson France  
 Ying Fu  
 Herbert Lyle Garner  
 Horace Winslow Gray  
 Robert Torrens Hatt  
 Adrian Townsend Hess  
 Lal Chand Kapur  
 \*\*John Ezra Little  
 \*Ella Elizabeth McNeil

Norman Fritz Miller  
 Robert John Burgoyne  
 Newcombe  
 Walter James Nungester  
 Willard Eagleson Parker  
 Andrew Winfred Plushnick  
 Ellen Lois Porter  
 Edward Randa  
 Isadore Ruben  
 Donald James Thorp  
 \*Burton Doan Thuma  
 Chia Choung Tong  
 Chang Ru Tsai  
 Paul Ziegelbaur

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### **BACHELOR OF ARTS**

Reba Abramson  
 \*Cedric Rush Adams  
 Gifford Spencer Adams  
 Robert Edwin Adams, Jr.  
 William McKinley Adams  
 Hattie Bell Ainslie  
 \*Ellerton Gordon Aldrich  
 LeRoy Alford  
 Fred Roland Allaben  
 Frank Phoenix Allen  
 Ralph Allen  
 Amos Dyer Allman  
 Frances Margaret Ames  
 Arthur Christian Ammentorp  
 John Edward Anderson  
 \*Charles Titus Andrews  
 \*Virginia Elizabeth Anthony

Leo William Applegarth  
 Richard Thomas Archbold  
 Ruth Virginia Arie  
 Leo Ash  
 George Washington Athey  
 Helen Levant Aubrey  
 Estelle Austin  
 Dale Byron Ayres  
 George Russell Babcock  
 Richard Webster Bachmann  
 Bruce Henry Bacon  
 Frances Josephine Baird  
 \*\*Barbara Baker  
 James Healan Baker  
 Lois Muriel Baker  
 Richard Carlyle Baker  
 Frederick William Bald, Jr.

\*\*Constance May Baldwin  
 Norma Lydia Balz  
 Theodore Paul Bank  
 Helen Virginia Barber  
 Mary Augusta Barber  
 Milton Conroy Barber  
 John Manly Barnes  
 Herbert Hilton Barraclough  
 Herman Everett Bartlett  
 Josephine Barton  
 Gertrude Dorothy Bean  
 Harold William Beattie  
 Howard William Beatty  
 Lucille Eleanor Bebeau  
 George Russell Beck  
 Jack Palmer Beckton  
 George Cooper Beeman  
 Elizabeth Grace Bell  
 Harold Eugene Belles  
 Lester Charles Bendle  
 Henry Stoughton Benjamin  
 Frederick Harvey Bennett  
 Albert Abe Berman  
 Maurice Berman  
 Sidney Bernbaum  
 Grace Lillian Besner  
 Nora Lucinda Bethel  
 \*Effie Carlotta Bettens  
 Truman Miller Bigelow  
 Adolph Edmund Bigge  
 \*Hazel Beatrice Black  
 Henry Chase Black  
 \*Harriet Lucile Blum  
 William Lyman Bobb  
 Arend Edward Boer  
 Florence Gillies Boomhower  
 Frank Maurice Boonstra  
 Clark Nathaniel Boothby  
 Harold Sheldon Bott  
 Helen Corinne Bowers  
 John Adelbert Boyce  
 Elizabeth DeSynnamon Boyd  
 Kathleen Elizabeth Boyd  
 Mary Rebecca Boyd  
 William Kenyon Boyer  
 Howard Lester Bradley  
 Russell Cannon Brannan  
 John Collins Breakey

John Philip Brewer  
 Robert Brikman  
 Thelma Margaret Bristol  
 Virginia Brodel  
 Marjorie Irene Bronson  
 Walter Albert Browe  
 Dorothy Naomi Brown  
 Dugald Edmund Smith Brown  
 James Corwin Brown  
 Marion Lippincott Brown  
 Thorne Joseph Brown  
 Elisabeth Hope Browning  
 Jesse Keener Brumbaugh  
 Winifred Marie Buck  
 Franklin Burt Buell  
 Ella Edith Buenting  
 Martha Buist  
 \*\*Louise Barry Bulkley  
 Lothrop Perkins Bull  
 George Earl Bullen  
 Willetta Ethel Bunn  
 Benjamin William Burbridge,  
 Jr.  
 Richard Gilleland Burchell  
 Cosette Burchfield  
 Willis Bushnell Burdick  
 John McDonald Burge  
 \*Robert Leslie Burhans  
 Celia Ida Burke  
 Harry LeRoy Burnett  
 Helen Harmon Buster  
 Florence Virginia Butcher  
 William Bernard Butler  
 \*Eleanor Butterfield  
 Elsie Dorothea Butts  
 Fred George Cadwell  
 Evelyn Warner Cady  
 Esther Leone Cake  
 \*Norman Cameron  
 Beatrice Mary Campbell  
 Charles Ihrig Campbell  
 Mildred Pearl Campbell  
 Ross Stevenson Campbell  
 Glen Everett Carlson  
 Elizabeth Ware Carter  
 J. Stanley Carter  
 Lincoln Jared Carter  
 Lulu Myrtle Casemore



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Paul Jones Casey	Goldie Brita Corneliuson
Warren William Caswell	Henry DeLa Cossitt, Jr.
Gladys Irene Catherwood	Evelyn Joanna Coughlin
<b>**Beatrice Lucine Champion</b>	Edison Henry Cramer
Harold Henry Hudson	Seward Sherman Cramer
Channer	William Tilden Crandell
Jen-Tsun Chao	Helen C. Crane
Nathalie Eleanor Chapman	Myron John Craver
Hung Pin Chen	Richard Granville Creedon
Ping Chuan Chen	Frederick Allen Cross
William Bowen Chenoweth	<b>Mark Ellsworth Croxton</b>
Harry Maurice Cherniak	Helen Lucille Currie
Smith Coleman Childs	Glenn D. Curtis
Myron Edward Chon	Alban William Curtze
<b>*Margaret Rees Christian</b>	Carl Folger Cushing
Lee Roy Christiansen	Mary Adelaide Cutting
<b>**Leonard Reed Christman</b>	Algot John Dahlberg
<b>**William Donald Christman</b>	Paul Ragnar Dahlberg
Georgia Allen Church	Gertrude Haskell Dates
Doris Allene Clark	Katharine Elaine Daugherty
Harry Andrew Sheldon Clark	Helen Alphena Davenport
<b>*Josephine Lillian Clarke</b>	Harold Wainwright Colter
Wilbert Tyde Claxton	Davis
Robert Sebastian Clifford	<b>Hazel Minerva Day</b>
<b>*David Glenn Cobb</b>	Howard Rupert Dean
Lucia Jeannette Cobb	<b>*Porter Graham Dean</b>
Herbert Marshall Cobe	Ralph Jerry Dean
Charlotte Alice Cochran	<b>Mamie Capen Degnan</b>
David Farnham Coe	Elmer Louis DeGowin
Julia Coe	Marjorie Miller Deitch
Ada Mary Cogswell	Victor Deitch
Charles John Cole	<b>Dorothy Emily DeKleine</b>
Stewart Rulison Conant	Gerrit Demmink
Albert Joseph Conboy	Wilmer Foster Dempsey
George Nathaniel Congdon	Florence Louise Demrick
Hal Samuel Conkey	Fenno Edwin Densmore
<b>**Frances Josephine Connable</b>	Herman William DeRuiter
Lawrence Henry Conrad	Martin Jerome DeTamble, Jr.
Lewis Nelson Cook	Laura E. Detwiler
Clara Maude Cooke	Thomas Edmund Dewey
Winchester Cooley, Jr.	Reimar Frederic Diekhoff
Beatrice Cooper	<b>**Arthur Frederick Dittmer</b>
<b>*Elise Cooper</b>	Bessie Natalie Divine
Robert Joseph Cooper	Helen Adeline Dixon
Lewis Ellsworth Corbett	<b>*Martha Torbitt Dodd</b>
Paul Devlin Corbett	Kenneth Fred Dodge
William Albert Corbett	<b>**Nona Lillian Doherty</b>
<b>*Madeline Dorothy Corlett</b>	Lena Gracia Doll

- \*Me Tsung Dong  
 \*Walter Arthur Donnelly  
 \*\*Frederic Garrett Donner  
 \*\*Harold M. Dorr  
 Frank Richardson Dougall, Jr.  
 Dorothy Chase Douglas  
 Margaret Alice Downing  
 Walter Gustav Draewell  
 Ellen Lane Drummond  
 Eleanor Elvira Drysdale  
 Stephen McKenzie DuBrul  
 Pauline Isabelle Duff  
 Paul Harold Dunakin  
 \*Burton Eberle Dunlop  
 Luis Martin Dyll  
 Clara Leonora Eastlake  
 \*\*Godfrey Dell Eaton  
 Hazel Ernestine Eckhart  
 Walter Oliver Ekeblad  
 Wallace Fordham Elliott  
 Frances Ely  
 Ione Marie Ely  
 Lawrence Bates Emery  
 David Adam Endres  
 Carl Emanuel Enggas  
 Frances Hazel Eppens  
 Sollie Aaron Epstein  
 Carl Gustave Erickson  
 Louis Philip Erlenbach  
 Catharine Amelia Evans  
 Mary Margaret Fair  
 John Baldwin Fairbairn  
 Margaret Katherine Fairbanks  
 Margaret Clarisse White Fair-  
 child  
 Thain Farley  
 \*Marvin Dwight Faust  
 Hussein Shefik Feizy  
 Fred Daley Fenker  
 Thomas Craig Ferguson, Jr.  
 Irma Leona Field  
 \*Annie Louise Finley  
 Mary Louise Finn  
 Silas Munger Finn  
 Violette Minnie Finsterwald  
 Isabel Fisher  
 \*\*Frances Mary Florer  
 Robert Folsom  
 Sidney Walter Foreman  
 \*Thekla Louise Forsyth  
 Leland Stanford Foster  
 Vee Gladys Foster  
 William Phelps Foster  
 Allen Ross Fox  
 \*Gerald Willis Fox  
 Donald Joseph Fraley  
 Frederick Merrill France  
 Einar Arthur Frandsen  
 Harold Friedman  
 LaRoy Albert Froh  
 Grace Adaline Fry  
 Kita Fukui  
 Anna Elizabeth Gabler  
 William Kenneth Galbraith  
 Elva Luella Galliver  
 Cecil Fletcher Galloway  
 Loren Sheffield Gannon  
 Stephen Munroe Garfield  
 Jesse Janes Garrison  
 Willard B. Gaskins  
 Thornton Gale Gebhard  
 Carl Ernest Gehring  
 Dorothy Geltz  
 Benjamin Gerber  
 Charles Herman Gessner  
 Edward Clark Gibson  
 Robert Delos Gibson  
 Samuel Abrams Ginsburg  
 Russell Seymour Gish  
 \*\*Julius Buckley Glasgow  
 Joseph Abraham Gluckman  
 \*\*Howarth Widman Gnaue  
 Henry Dawson Goff  
 \*Martin Samuel Goldring  
 Harold Denison Golds  
 \*\*Irving Baer Goldsmith  
 Alva Joanna Gordon  
 Harry Shiloh Gould  
 Portia Goulder  
 Benjamin Gray Gower  
 Chester Edward Graham  
 \*\*Louise Janet Graham  
 Edith Dorothy Graves  
 Kenneth Montgomery Gray  
 Robert Thomas Gray  
 Samuel Greenberg

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Clarence Elijah Greene	*Sylvia Hassenzahl
John Harold Greene	Kathleen Hatton
Emerson Frank Greenman	Elizabeth Marian Hawxhurst
Catherine Greenough	John Allen Hay
Charles Moore Greenway, Jr.	*Frances Gage Hayes
Alexander Gregory	Gertrude Ann Hayes
Richard Gregory	Anna Luvern Hays
Laura Gridley	Russell Randolph Hays
Mary Griffin	Alvah Andrew Heald
Rudolph John Gross	Francis Morrison Heath
Leon Earl Grubaugh	Carrie May Van Schoick
Willard Francis Gruschow	Heavenrich
Alice Louise Guetschow	Herman Willis Heibredner
Mina Alberta Guilford	Richard Edward Heidemann
John Englebert Gunther	Charles Herbert Heinold
Otto Erwin Haass	**Caroline Elizabeth Heiniz
Ralph Lawrence Hagameir	Eugene Lee Heller
Hovey Hagerman	Alma Marie Henderson
Harold Taylor Hall	Mary Henderson
Helen Langerwisch Hall	Thelma Fidessa Henderson
Livingston DeVere Hall	Lillian Mae Herman
**Robert Burnett Hall	Wendell Herrick
Geneva LaVerne Hallenbeck	Leo Jack Hershendorfer
Catherine Rosina Halsey	William Eugene Hettrick
Henry Frederick Hamill	Marie Onolee Heyer
Henry George Hammer	John William Heyt
Theron Demont Hammond	Vera May Hill
Will Earl Hampton	Louis Richard Hiller
Cliveous Jeannette Hancock	Margaret Elizabeth Hiller
Helen Jeannette Hanlon	Vernon Francis Hillery
Fred Robert Hanna	Gladys Himmon
Idella Medora Hawley Hanna	Charlotte Ann Hinrichs
Eleanor Armorel Hannah	Anna Marie Hinshaw
Wendell Forest Hanselman	*Walter Hirschy
Norman Richard Hanson	Cecile Palmer Hitchcock
Alice Catherine Hardenburgh	Mary Isabelle Hobson
Helen Harding	Genevieve Hodgson
Lela Blanche Harger	Beatrice Hoek
Volney Carl Harmon	George Edward Hoek
Mildred Evaline Harrington	Charles Edward Hoffer
Mary E. Harris	Hazel May Hoffman
Gurthie Urban Harrison	Rae Aaron Hoffman
Lauren Darwin Hart	Amelia Rose Hoheisel
Maurice Pulliam Hartleb	Thomas Willard Holland
Elmer Everett Hartwig	Henry Rosecrans Holmes
*Sadye Lillian Harwick	Clement Aaron Hopp
Elton Frank Hascall, Jr.	Warren Campbell Horton
Elbert Dixon Haskins	William Walter Horton

Leona Miriam Horvitz  
 Charles Elliott Howard  
 William Johnston Howard  
 Mary Catherine Howe  
 Frank Jackson Howlett  
 Mary Lillian Howlett  
 Lawrence Huston Houtchens  
 Elizabeth Snow Hoyt  
 Genevieve Oweida Hoyt  
 Warren Hartley Hoyt  
 Lyle Seabury Hubbard  
 \*\*Lucy Huber  
 Julius Frank Huebner  
 \*Walter Harold Huehl  
 Sidney Helen Huff  
 Bertram Lucius Hughes  
 James William Hume, Jr.  
 Eunice May Humphrey  
 Catharine Elizabeth Hunt  
 Grace Marian Hunter  
 Irene Lucille Hunter  
 Olive Estelle Hurlburt  
 \*\*George Rosewall Husband  
 Elizabeth Hutchens  
 Waldo William Illi  
 Walter Wesley Ind  
 Fred Ingle, Jr.  
 Marguerite Mary Ingold  
 Henry Thomas Irving  
 Frances Morgan Irwin  
 Egbert Raymond Isbell  
 \*Frances Dolores Jackson  
 Dorothy Jane Jacobs  
 Leone Rhoda Jacobs  
 Edna Edyth Jarchow  
 Edward John Jeffries, Jr.  
 Judith Jenison  
 Pearl Irene Jenne  
 \*\*Edith Antoinette Jensen  
 Caroline Claire Johnson  
 Irwin Ezra Johnson  
 James Junius Johnson  
 Oscar Martin Johnson  
 Owen Maynard Johnson  
 Ralph Redington Johnson  
 Mary Mildred Johnstone  
 Charles Richardson Jones  
 Deborah Helen Jones

Natalie Frances Jordan  
 Nelson Joyner, Jr.  
 Mabel May Kadow  
 Bernice Dorothy Kahn  
 Lileon Kahn  
 \*Leland John Kalmbach  
 Clare Gladys Kammer  
 Julia Caroline Kammer  
 Helen Eva Kane  
 \*\*Eugenia Sue Katz  
 Vera Esther Katz  
 Anne Edith Keidanz  
 Doris Keller  
 Frances Keller  
 Franklin Joseph Kelley.  
 Melvin Francis Kelley  
 John Francis Kenney  
 Geneva Charmian Kent  
 Lowell Stewart Kerr  
 \*Lorna Lincoln Ketcham  
 Isaac John Khoury  
 Paul Thomas Kilborn  
 \*\*Mana Frances Kilpatrick  
 \*Caroline Johanna Kimmeler  
 John Ellsworth King  
 Paul Beaumont King  
 Ruth May King  
 Elizabeth Brodhead Kingman  
 Frances Evelyn Klaassen  
 Martin Arnold Klaver  
 Adolph Klein  
 Victor Walter Klein  
 Dorothy Klooz  
 \*Marie Linnette Knapp  
 Robert Troxell Knode  
 Irwin Koch  
 Marion Koch  
 \*\*Genevieve Myrtle Koehn  
 Benjamin Bernard Koploy  
 \*\*Margaret Anna Kraus  
 Charles Coolidge Kreis  
 Eita Krom  
 Katherine Elizabeth Kuhlman  
 Charles Louis Kuhn  
 \*Edward Kupka  
 Harry Brack Ladner  
 Dolph Lain  
 Thomas Beck Lally

J. Sims Lamar  
 \*\*Louise Lambertson  
 Edward Frederick Lambrecht  
 James Verle Lammy  
 Milton Raymond Landy  
 Lenn Learner Latham  
 Burley Laurimore  
 \*Ferne Parsons Layton  
 Arden Glancey Leatherman  
 \*\*Merwyn Grant Leatherman  
 \*Ruth Naomi Lechlitrer  
 Willis Ralph Leenhouts  
 Rose LeMay Lehman  
 Ruth Anne Leiter  
 Joseph Leta, Jr.  
 \*\*Marjorie Ruth LeVeque  
 Emelia Lenhoff Levin  
 \*Sarah Levin  
 Hyman Levinson  
 Caroline Lang Levy  
 William George Lichtenberg, Jr.  
 Myrl Carl Lichenwalter  
 Mildred Leona Lindberg  
 \*Nels Robert Lindquist  
 Howard Jennings Liverance  
 Richard A. Loeb  
 Isabel Jeanette Lokie  
 Frank Losch  
 Fandira Caroline Ludington  
 Abigail Lurie  
 Helen Gertrude Lynch  
 David Earl Lynd  
 Robert Sheridan McAllister  
 Earle Drake McBride  
 Jonathan Watson McCall  
 Marion Mabelle McCauley  
 \*Edward Clyde McCobb  
 Duncan John McColl  
 Norman Wilfrid McCormick  
 Channing McFadon  
 Ross Armstrong McFarland  
 William McGregor  
 Robert Bruce McIndoe  
 Myrtle Ruth McIntosh  
 Margaret Lenore MacIntyre  
 \*Archibald McDonald McIsaac  
 Vincent Francis Mackel  
 Walter Graves McKelvey

Doris Irene McKenzie  
 Muriel Keith Mackenzie  
 Amanda Emaline McKinnay  
 Horace Ely McKnight  
 \*\*Dean Benjamin McLaughlin  
 \*Marion Margaret McLean  
 Martha Lacy MacLean  
 Aileen McLeod  
 Alexandria Josephine McRobb  
 Raymond Fitch Mahaffy  
 Norman Raymond Frederick  
 Maier  
 Thane Oscar Malmstone  
 Walter Evans Manion  
 Robert Frederick Manogg  
 James Harvey Martin  
 Robert Owen Martin  
 Waldo Christian Marx  
 Alexander Parfeni Maslow  
 Luthera Frances Mason  
 \*Robert Wesley Masters  
 Matsue Matsumoto  
 Florence Wallace Matthews  
 \*Dorothy Field Maywood  
 Elva Cora Mazer  
 Laura Evelyn Meader  
 Mendel Emanuel Medalie  
 Edwin Roy Meiss  
 Janet Elizabeth Menges  
 William John Menke  
 Lila Sophia Mergard  
 Rudolph Edward Mertens  
 \*Manuel Merzon  
 Lucile Ellen Meyering  
 Everett Block Michaels  
 Herman John Michalske  
 Albert Abram Michels  
 \*Helen May Middleswart  
 Roland Arthur Mildner  
 Philip Carol Miham  
 Bertha Miller  
 Catherine Eleanor Miller  
 Charles Raymond Miller  
 Daniel Jacob Miller  
 \*Eleanor Mary Miller  
 \*\*Helen Willett Miller  
 James Mann Miller  
 Lottie Annette Miller

Neil Miller  
Bert Perkins Millett  
Allen Henry Mills  
Laura Elizabeth Mills  
Orlando Cameron Moffatt  
Thomas William Moffitt, Jr.  
Florence Elizabeth Mohr  
Alexander Truman Montgomery,  
Jr.

Arthur Eugene Moore  
Robert Heck Moore  
\*Edward Frederick Moore  
Wendell Phillips Moore  
Earl George Morgan  
\*Yone Miyata Moriya  
John Olan Mory  
Maurice Moser  
Henry Hodgen Mudd  
John Decimus Mulheron  
Catharine Weest Mullen  
Robert Elenore Mulvogue  
\*\*Dorothy Victoria Mummery  
Elmer Ruben Mundt  
Cara Louise Murbach  
Anne Mushkin  
Clifton Gustavus Myer  
Clifford Albert Nault  
Leona Mary Neely  
\*Mildred Elizabeth Neff  
Gertrude Elizabeth Neumann  
Albert Adolph Neverth  
Elbridge Gerry Newhall, Jr.  
Walter Judson Nichols  
Ernst R. Nickel  
Delta Kathleen Niethammer  
Agnes Rose Nissen  
Charles Francis Noonan  
Phyllis Marion Norris  
Marion Elizabeth Norton  
Frederick Rudolph Nyberg  
\*Anita Nye  
\*Lorraine O'Bryan  
Mary Frances O'Hara  
\*\*Constance Ohlinger  
George Maloney O'Hara  
Helen Owen O'Leary  
Elizabeth Davis Ornduff  
Francis James Ortman

Paul Romaine Osborn  
Marian Leota Osborne  
Royal Marshal Osterhout  
William Whiting Ottaway  
\*Harold Lowell Packer  
Varn Dillon Paddock  
\*Paul Clifford Padget  
Eugene Pakes  
Jeanette Adelle Palmer  
Meyer Paper  
Helen Anna Paris  
David John Megaw Park  
Douglas Fraser Park  
Albert Jennings Parker  
Macie Ida Parker  
Russel David Parr  
Harry Romaine Parsons  
Marion Verneta Patch  
Rollin Olds Paterson  
Elsie Fern Patton  
Mary Annabel Paxton  
Calvin Eugene Perry  
Eugene Boone Perry  
\*Clarence Albert Peterson  
\*Charlotte Vose Phelps  
Arnold Alamanzo Piatt  
Claude Leon Pickens, Jr.  
John William Pollins  
Doris M. Porter  
Samuel Rollo Post  
Kathryn Teas Potter  
Robert Carlton Powell  
Glenn Leroy Powers  
\*William Douglas Powers  
Carl Rosecrans Pratt  
Charles Stebbings Pratt  
\*Alvin Edwin Price  
Robert Joseph Price  
\*\*Sigmund Kluss Proctor  
Donald William Pugsley  
\*\*Una Alexandra Purdie  
Morse J. Rabinowitz  
Sylvia Juanita Ralston  
Florence Ethel Slawson Ramsey  
\*\*Edward Thomas Ramsdell  
Robert Dewey Rankin  
Janice Voice Ransom  
Howard August Rasch

James Charles Rauss  
 \*Grace Ray  
 Edward George Read, Jr.  
 Mary Ellen Read  
 Essie Kate Reese  
 Paul Albert Rehmus  
 \*\*Edward Snover Reid, Jr.  
 \*\*Lilian Gilmour Reid  
 Miriam Frances Reid  
 \*Margaret Adelaide Reineke  
 Helen Josephine Reno  
 Florence Rosetta Rhodes  
 Myrtle Hamilton Rhodes  
 \*Lemire Thomas Rice  
 William Jacob Rice  
 Avon Rich  
 \*\*Charles Robert Richards  
 Clyde Fergus Richardson  
 Carl William Richmond  
 \*Otto Clarence Richter  
 John Ross Riford  
 Elizabeth Miller Rigby  
 William Henry Riley, Jr.  
 Buckley Cutler Robbins  
 Helen Elizabeth Roberts  
 Charles Gray Robertson  
 Gordon James Robertson  
 Nathan Wood Robertson  
 Alfred Herbert Robins  
 Doris Harriette Robinson  
 Douglas Fergusson Roby  
 Everett Magahay Roe  
 \*Richard Frederick Roe  
 Raymond Roy Roecker  
 George Wenger Rookwood  
 Lillian Rosenbaum  
 Earl Maurice Rosengarten  
 Kurt Edward Rosinger  
 Bernice Brake Rowe  
 Carl Fred Ruck  
 Marvin Ernest Ruder  
 Marion June Ruelle  
 Elsie Carolyn Rummel  
 Robert Culver Rumsey  
 Marion Jeannette Russell  
 \*Helen Sunderland Safford  
 Frederico Sanchez  
 Marion Rosine Sanders

Beatrice Elanie Sandles  
 \*\*Joseph C. Satterthwaite  
 Howard Garner Scahill  
 Margaret Anne Scales  
 Jack Schaffner  
 Paul August Schalm  
 Clarence Alfred Schaller  
 Ruth Alice Scheidler  
 George Ashley Schemm  
 Nathan Schlafer  
 Albert Joseph Schmidt  
 Carl Joseph Schmidt  
 \*Carriabel Schmidt  
 Dorothy Mayhew Scholl  
 Bowen Emerson Schumacher  
*As of the Class of 1922*  
 Charlotte Lodama Schurz  
 Charles Frederick Schweizer, Jr.  
 Mary DeLeyla Scott  
 Mary Sophia Scovill  
 Herbert Gates Selby  
 George Davis Sellards  
 Alfred Wallace Selligman  
 Zella May Senff  
 \*Ruth McKinley Sewall  
 Ward Shannon  
 \*Victoria Elizabeth Shaw  
 Charles Wesley Shilling  
 Helen Artimese Sicard  
 Mary Elizabeth Siefert  
 Harry Stuebner Siegel  
 Oscar Edward Siewert  
 David Robert Simon  
 Celma June Simonson  
 Wilfred Alexander Sinden  
 Theodore Roosevelt Slatery  
 Clement Andrew Smith  
 Elizabeth Taylor Smith  
 Sara Jane Minerva Smith  
 Susan Margaret Smith  
 William Earl Smith  
 Lawrence Wordsworth Snell, Jr.  
 Beatrice Ada Snider  
 Leta Madeline Snow  
 Ruth Helen Snyder  
 Emil Alfred Soderman  
 Anna Ruth Solomon  
 Ruth Lenore Southerton

Mary Anita Sower	Vera Lucille Tibbits
Katharine Eleanor Spaford	Catherine von Tobel
Philip Bennet Spear, Jr.	Rose Winifred Tobias
Marshall Dean Spencer	Margaret Ellen Toft
Richard Greig Sprunk	James Kent Torrey
Victoria Carlotta Squier	Eva Emma Trchsel
Hester Amelia Staff	Edward Douglas Trembly
*Marion Barber Stahl	Lois Trethewey
Thoburn Milar Stamm	Salvador Trevino-Garcia
Hamlin Alanson Starks	Mary Mildred Troester
Helen Amy Stein	Virginia Vaughn Tryon
Philip Godfrey Steiner	Zok Tsung Tsao
James Curtis Stevens	Kenneth William Turner
Marjorie Julia Stevenson	Arlene May Underwood
Cora Leah Stobie	Ellah Adele Unger
Hope Elizabeth Stoddard	James Robert Upjohn
Weston Lee Stoddard	Edward Thomas Usher
Albert Clemons Stokes	William Alonzo Vail
George Luther Stone	Edson Blaine Valentine
Arthur Elwood Stone	John Sherburne Valentine
Lewis Harlan Stoneman	Mildred Aileen Valentine
Helen Adah Stoughton	William Charles Valentine
Gertrude Stratbucker	Mary Joyce VanAllstyn
Helen May Appenzeller	Lee Douglas VanAntwerp
Stricker	Leonard Charles VanBoven
Mabel Olive Strong	Mildred Grace van Camp
Edwin Fisher Struble	Dorothy VanDeursen
*Frances Eleanor Stryker	Christel Louise Vander Horst
Jeanette Dunster Studley	Jacob VandeVisse
Virginia Winifred Sullivan	*Arthur VanDuren, Jr.
Warren Manning Swager	William Joseph VanOrden
Blair Kinch Swartz	Robert Donald VanStone
Katharine Esther Swayze	Bonar Louise VanZandt
Katherine Lucile Swearingen	Walter Hippen Velde
Kenneth Edwin Taft	Edgar William Voelker
Maude Eleanor Talcott	*Victor James Voorheis
Ching Tseng Tang	Esther Lavina Vore
Marion Elizabeth Tanner	**Edna Field Vosper
Gale Wirt Taylor	*Mary Cannon Wahr
Howard Francis Taylor	Helen Josephine Waldron
*Miriam Teed	Ruth Olive Waldron
**Beatrice Mary Tench	Walter Oscar Walford
Frank Lee Tennent	Margaret George Walker
Martha Carolyn Thayer	Marion Lucile Walker
Margaret Elise Thielman	Glenn Oren Wallace
**Agnes Lemoine Thompson	*Gretchen Walser
Gladys Lucy Thompson	Carol Vaughan Walters
John Ami Throp	Ethel Leota Ward



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Hugh Warren	*Caroline Gay Wilgus
*Margaret Warthin	Lee Wilks
Elisabeth Parker Wason	Doris Emeline Williams
Caroline Martha Waterman	**Miller Williams
David Schell Watterworth	Viola Marie Williams
Francis Finch Webber	Esther Helen Willis
Wilmer Edwin Webster	Lois Winifred Wilmot
Guy Grant Wedthoff	Frances Isabelle Wilson
Minnie Bishop Weis	*Harriet Mary Wilson
Paul Henry Weiskopf	Loyal Barr Wilson
Everett Kenneth Welch	Faith Winters
Howard Andrew Welch	**Emily Mitchell Wires
Lawrence William Weller	John Stephen Wojciechowski
Marian Isabelle Hall Weller	Charles Henry Wolfe
Esther Marie Welty	Helen Lee Wong
**Mary Lucile Welty	Constance Wood
Herman Wepman	Grace Mae Wood
Ruth Gretchen Werkheiser	Marian Alice Woodmancee
Charles Frederick West	Emily Jackson Woodruff
Marjorie Kate Westbrook	Joseph M. Woodward
Helen Marjorie Westerman	Gwyneth McFarland Wrentmore
Frederic Weyand	Shao Tseng Wu
Ruth Whipple	Waldemar Henry Yaeger
Gordon Ellis Whitbeck	Ju-Mei Yang
Kirk Schroder White	Yuan Yin Yang
Albert Whitehead	Harry Ernest Yost
Gwen Whitehouse	Mark Vreeland Yost
**Lucile Whitfield	Paul Young
Hazel Marie Whitling	Alice J. Zametkin
Robert Clyde Whitlock	Rose Lucille Zanella
Grant Whitman	Julian Leon Zemon
Virginia Whitson	Muriel Mary Zimmerman
Margaret Mary Whyte	
*Harriet Cornelia Wilcox	

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## COLLEGES OF ENGINEERING AND ARCHITECTURE

### BACHELOR OF SCIENCE IN ARCHITECTURE (Architecture)

Abe Herman Brodkey	John Jacob Esterheld
Ralph Russel Calder	Howard Lee Farley
Lawrence Emerson Caldwell	Catherine Bortie Heller
Ralph Waldo Demmon	Donald John Lewis
Delbert Donald Ehresman	Earl Hugo Lundin

Frederic John Morse	Frances Sutton	
George Lester Petersen	Calvin Henry Skinner	
Maurice Vivian Rogers	Horace Whitney Wachter	
Benjamin Karl Ruehl		17

**BACHELOR OF SCIENCE IN ARCHITECTURE**  
(Architectural Engineering)

Glenn Homer Benjamin	Edward Lawrence Kline	
Oscar Henry Cartwright	Martin Frederick Lexen	
Bernard Fink	Alfred Riddle Naser	
Elmer Robert Hicks	George Lewis William Schulz,	
Harvey Rice Hoffmaster	Jr.	
Shinn-hong Howard Jee	James Alexander Spence	
Paul Jacob Ketelhut	Archie Leslie Striegl	13

**BACHELOR OF SCIENCE IN ENGINEERING**  
(Geodesy and Surveying)

Franklyn Otis Kugel		1
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**BACHELOR OF SCIENCE IN ENGINEERING**  
(Aeronautical Engineering)

Alexander Duncan Buchanan	Ernest Della Perkins, Jr.	
Maurice Warner Green	William Henry Schwartz, Jr.	
George Judson Higgins	William Paul Wagner	6

**BACHELOR OF SCIENCE IN ENGINEERING**  
(Naval Architecture and Marine Engineering)

Roger Putnam Adair	Stephen Johnson, Jr.	
Joseph Francis Barnes	Boleslaw Peter Kolwicz	
Charles Bernard Coe, Jr.	David McTaggart, Jr.	
Edward Cobb Davidson	Joachim Eberhart Seeiger	
Victor Paul John	Frank Wareham Trevorrow	10

**BACHELOR OF SCIENCE IN ENGINEERING**  
(Chemical Engineering)

Domingo Infante Arteaga	John Joseph Blissel	
Werner Emmanuel Bachmann	William Manley Buckley	
Harris Hopkins Ball	Floyd Arthur Burns	
Dwight Fahrigr Benton	Howard Glazier Chamberlin	
Joseph Francis Boiny	Ralph Frederick Cohn	
Alvan Vinton Brashear	Robert Blair Crawford	

Frank Chatfield Cutting  
 Marion Adelbert Dibble  
 Richard Fleming, Jr.  
 John Tennant Garber  
 Lloyd Emanuel Gordon  
 Lynn Sherman Gordon  
 Lloyd William Heard  
 Bennette Legge Heath  
 Bruce Armour Irwin  
 Harold Wesley Jackman  
 Louis Walter Kempf  
 William Worley Kerlin  
 Merritt Joseph Lillis  
 Merle Orrin McClellan  
 Gregory Edward McCloskey  
 J. W. Hollywood Monaweck  
 Joseph Charles Morris  
 Charles Edward Mueller  
 William Alvin Myers  
 William Lysle Newbury

Richard Arthur Nugent  
 Arthur Davis Oetjen  
 Robert Edward O'Neill  
 Fowler Loud Osborne  
 Frederick Albert Otto  
 Walter Lehman Pinner  
 Lewis Stephen Pratt  
 Charles Murray Ridgway  
 Norman Carvel Roegner  
 Stephen John Roskosky  
 Arthur Thomas Saunders  
 Richard Schneidewind  
 Howard Irwin Shaw  
 Harold Randolph Slagb  
 Arthur Henry Stuart  
 Robert Mantell True  
 Jen-King Whang  
 Lincoln Bickford Wilson  
 George Washington Whitney

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### BACHELOR OF SCIENCE IN ENGINEERING (Electrical Engineering)

Joy Charles Adams  
 Robert Warren Alexander  
 Elmer Doral Bartley  
 Edwin Hubert Bell  
 Newton Hamilton Bollinger  
 Calvert Ammidown Boyd  
 Ralph King Brenner  
 William Arden Brice  
 William Alfred Brown  
 Ralph Roger Bruch  
 Burt Simeon Burke  
 Theodore Johnston Case  
 Willard Champe  
 Everett Chapman  
 Hollis Joachim Colyer  
 William A. Cotton, Jr.  
 A. Maywood Courtright  
 Carl Cornelius Crane  
 Elton Mathias Discher  
 Llewellyn John Doonan  
 William Jackson Dreiss  
 Karl Boller Duerr  
 Joseph Edward Duquette  
 Arthur Stanley Fetters, Jr.

George Tse-Wei Fong  
 Howard Clifford George  
 Charles Walker Gibford  
 Henry William Goodman  
 John Nowak Gosinski  
 Darwin Lambert Hadley  
 Cecil Gaylord Hall  
 Alfred Lewis Harvey  
 Robert Wendell Hodge  
 Albert Shelley Hoefflin  
 Lewis Nelson Holland  
 James Wendell Jantzen  
 Philip Stevens Keeler  
 Harold Vale Kelly  
 Howard Frederick Kingdon  
 Charles William Kinney  
 Joseph Frank Kruszka  
 Clifford Peter Kuhl  
 Cecil Leet  
 William Charles Leingang  
 Aaron Levin  
 Charles Werner Listmann  
 Willis Elon Losie  
 Clarence Edward Lucas

Hamann Lyon	Kenneth Henry Quail
Anton George Maihofer	Edgar Russell Robinson
Charles Dittrich Malloch	Irving Jesse Sandorf
Lester Frederick Marston	Richard Cecil Schmitz
Allen Jay Martin	Earl Jennings Smith
Albert Griffey Masters	Hugh Deming Stillman
Gilbert Elton Mears	Tsong Yua Tsou
John Benjamin Meister, Jr.	Myron Willard Turner
Maurice Anson Mills	George William Videan
Robert Haines Mooney	Ray Van Volkenburg
Edwin Stephenson Moreland	Leslie Webster
Henry Jordan Morton	William Bradford Wines
Richard Northcotte Olds	Harry Lancaster Wilcox
Germer James O'Mara	Richard Claude Wolfe
John Arnold Peterson	Edward Ralph Wolfert
William John Piper	George Wilson Younglove
Frank Maynard Reed	

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# **BACHELOR OF SCIENCE IN ENGINEERING** (Mechanical Engineering)

Walter Carl Abendroth	Robert Ellery Dymont
Edward Clarence Ackerman	Edward John Elliott
Robert Waterman Ackley	George Peters Elliott
Archibald Stuart Adams	William Theodore Ferguson
Carl Frederic Alt	Vance Shadley Firestone
Paul Julius Baker	Charles Walter Frederick
Orville Robert Beattie	Leon Earl Frost
Ronald Colquhoun Boucher	Gordon Joseph Gallagher
Ralph William Bowen	Harry Goodwin Garman
Roger Knapp Braun	Paul Gordon Goebel
Nathaniel Brewer	Nahum Goldman
Harry Abram Brinker	Lorn Albert Green
Edmund Eugene Burke	Chester Emmel Grigsby
Bruce Arthur Butcher	Grant Harris
Paul Mitchell Camiener	Charles George Harrison
Guy Henry Cannon	Gordon William Harry
Andrew Carnegie	Edward Christian Haug
Albert Loring Clark, Jr.	Elmer Runyan Helferich
Arthur Emmett Coates	Wayne Gurnee Henderson
Ira Lewis Conkling	John Henry Hills
Howard Lee Cooper, Jr.	Milton Gibson Hinkley
George Louis Cotter	George Arthur Holmes
George Isaac Crossman	William Herman Howard
Harvey Pollard Dawts	Donald Lee Hunting
John Ward Deetrick	David Gerard Iliff
Kenneth Woodbridge Donnell	George Edward Jenner
Ralph Emerson Dunlap	Arthur Joseph Karpus

Henry Joseph Kehoe	Hugh Moore Potter
Harry George Kettenring	Virgil Marion Potts
Harold Stuart Kilpatrick	Wesley Howard Puyear
Harold William Kinsel	Fred William Redemsky
Leland White Kirkpatrick	Robert Stanley Reed
Gayard Frank Lafer	Thomas Mitchell Robinson
Edwin Strauchen Lauer	John Wesley Ross
Kenneth Alton Lawrence	Edwin Andrew Roth
Charles Baird Leeson	Vernon Howard Sauble
Lee West Leonhard	Max Robert Schrayner
William Harold Lightbody	Fredrick George Seaver
Ilah Dewey Lumby	William Harvey Seeley
William Basil Lymperis	Dean Campbell Seitz
Louis Anthony Lyzenga	Max Anthony Shaffer
Lester Gaige McElhose	Edwin Frost Smellie
Philippus McLachlan	Robert Merrill Smibert
Gordon McLarty	Myron William Smith
William Hoyt McLeod	William Earle Stadel
Harry Bowman Miller	Willard Alonzo Stearns
Harvey John Miller	Leslie Warren Stoddard
Harold Fredrick Mitchel	Devere Gibson Stranahan
William Frederick Moore	Blair Kinch Swartz
Francis Raymond Murphy	Clay Ellis Tandy
Robert Louis Neale	Pedro Membrado Telmo
Edward M. O'Hara	Robert Wellman Townsend
Leon Edwin Osmer	Herbert Arthur Traut
Russell William Parkinson	Ralph William Vosper
Alfio Carl Pasini	Donald Benjamin Waite
Clyde Raymond Paton	Gordon Tarbell Waite
Paul Brown Pew	Wilton Parker White
Eugene T. Phillips, B.S., <i>Knox College</i>	Emerson Marion Williams
Robert Theodore Plate	Rogers Mechlin Woolcott 118

### BACHELOR OF SCIENCE IN ENGINEERING (Civil Engineering)

Harold Joseph Allen	Yook Dhi Chew
Kingsley Sherman Anderson	Robert Chapman Christian
Wyman Angus	Walter Ellsworth Comb
William Jackson Bailey	Charles William Crew
Maurell Lamb Baxter	Cameron Lloyd Davis
Ralph Leroy Belknap	Robert Lyman Davis
Hugh Atlin Benner	Harvey Henry Eustron
Ashton Jesse Berst	Herbert Sidney Fenwick
Carlton Lyman Brunt	Theodore Jack Finger
Willard George Bryant	Julian Alston Fisher
Pharo Collins Burg	James Oliver Foster

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Elmer John Giffels	Lowell Kendall Mower
Lawrence Robert Gillis	Dudley Newton
Edwin Sims Gleason	Worthing Rexford Norton
Gordon Frederick Godley	Frank H. Oconnell
David Goldberg	Manuel Enriquez Pablo
William Henry Hooper	John Wallace Page
Clarence Warren Hopkins	Lloyd Brownlee Reid
William Stuart Housel	Robert Ellersley Reid
Harold Irving Howell	Demetrio Rodrigues Pena
Charles Harold James	Samuel Aaron Reuben
Olaf Vosbein Jensen	Alfred William Santelmann
Ellis Morrow Keeler	Henry Schuiling
Kim Lee Khemmani	Harold Joseph Senior
Benjamin Samuel Krell	Emilio Serra
Robert John Kullman	Kenneth LeRoy Slater
August Carl Lang	Melvin Clifford Sperry
Louis William Lay	William Alfred Stauffer
Ronald Curtis Linton	Daniel Stepanovich
Jose Alberto Martinez	Melbourne George Stewart
Robert Donald Maxwell	Pedro Diccion Tanguilig
Robert Andrew McGeachy	Frederick Charles Taylor
Robert Bryant McIntosh	Herndon Taylor
Gustavo Maldonado	Norman Kay Trackett
Konrad Paulus Mangold	William John Tulledge
John Raymond Meranda	John MacMillan White
Lester Solomon Miller	Lloyd John Woltzen
Charles Mason Mower, Jr.	

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## MEDICAL SCHOOL

### DOCTOR OF MEDICINE

Joseph Louis Abramson	Myrton Shaw Chambers
Warren Wood Babcock	Stanley Owen Chambers
Alvin Julius Baer	†Joshua Kenneth Cole
†Carl Clark Bailey	William Elwell Cole, B.S.
†Ernest William Bauer	William Afred Corcoran, B.S.
Theodore Irving Bauer, B.S.	Bernard Crane
George Harold Belote, B.S.	James Elliott Croushore
William Morgan Brace, A.B.	Peter H. Darpin, A.B.
†Henry Proctor Buckingham	Ward Crissman Denison
William Berkley Butler, A.B.	Robert R. Dieterle
<i>Lincoln University</i>	Stewart Edward Doolittle, B.S.

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† Those graduates of the Medical School whose names are preceded by a dagger (†) included in their studies also courses in Homoeopathic Medicine

- †Russell Franklin Fenton  
 Norman Ernest Fisher  
 Hudson Will Fleischhauer, A.B.  
 Isidor Harold Friedman  
 Charles Edward Futch, B.S.  
 †Herman William Galster  
 Paul Hoeffel Garvey  
 Ai Lan Giang  
 Orla Hilliard Gillett, B.S..  
 †Charles Gitlin  
 †Evelyn Lucile Ruffe Grant,  
     A.B., *Vassar College*  
 James Wood Halfhill, Jr., B.S.  
 Enoch Walter Hall, B.S.,  
     *West Virginia Wesleyan*  
     *College*  
 Ralph Emerson Hall, A.B.,  
     *West Virginia Wesleyan*  
     *College*  
 Clarence Hardy  
 Robert Francis Heatley  
 Cecil Benedict Hert  
 Leland Victor Hewitt  
 Arthur Fisher Heyl, B.S.  
 Minard Friedberg Jacobs, B.S.  
 Francis Bernard Jarzembowski  
 †Paul Mahlon Jerrell, A.B.,  
     *Indiana University*  
 Everett Vernon Johnston  
 Kenneth Paul Jones  
 Francis Nelson Kimball, A.B.  
 Arthur Dale Kirk, B.S.  
 Herbert Gustav Kleekamp  
 Herbert Conrad Kling  
 Walter Oscar Klingman, A.B.  
 †Paul Marland Kober, B.S.,  
     *Hobart College*  
 William Kruger  
 John Henry Labadie  
 Oza Joseph LaBarge, B.S.  
 Edward Huiss Lauppe  
 John Tipp Lee, A.B., *Lincoln*  
     *University*  
 †William Mathias LeFevre, A.B.  
 Tsing Lien Li, B.S.  
 †Clement Elton Lockwood  
 L. Coleman Ludlum, B.S., M.S.  
 Russell Earl Lynch  
 Oliver Kenneth McAdams  
 Kenneth Malcolm McColl, A.B.  
 Daniel Heim McKinney  
 Charles Albert McNeil  
 Louis Meltzer  
 Galen Eugene Miller, B.S.  
 Paul McNary Moore  
 Frank Todd Moran  
 Albert Phillip Ohlmacher  
 †Clarence Henry Peachey, B.S.,  
     *Hobart College*  
 James Mortimer Pierce  
 Rudolph Jerome Price, B.S.,  
     *Earlham College*  
 Alton Edward Pullon  
 Paul Thomas Quarry, B.S.  
 Frederick Gerald Ransom  
 Henry King Ransom, A.B.  
 Fred Townsend Reid  
 Samuel Burton Rentsch  
 William Frederick Reus  
 Harold Walter Riggs, A.B.,  
     *Albion College*  
 Granville Marion Riley  
 Maurice Louis Ripps, B.S.  
 Harold Rich Roehm, B.S., M.S.  
 James Alfred Rolls, A.B.  
 Margaret Rottschaefer, B.S.  
 Lawrence Mangus Rutz  
 Alta Lodema Sager, B.S.,  
     *Greenville College*  
 John Ferdinand Sander, B.S.  
 David Jacob Sandweiss, B.S.  
 Charles Douglas Sargent  
 Mary Catherine Saxe, B.S.  
 John Henry Schlemer  
 Lawrence Bassett Schneider  
 Joseph Schwartzberg, B.S.  
 Joseph Hurlong Scott, A.B.,  
     *Lincoln University*  
 Royce Roemer Shafter  
 †Suel Andrews Sheldon, B.S.  
 Benjamin Shlain, B.S.  
 Helen Slaughter, A.B., *Smith*  
     *College*  
 Harold Ivan Sparling  
 Lorna Minerva Spenser, A.B.,  
     *Western Reserve College*

George Alpheus Stimson  
Ruth Patience Stone, B.S.  
*Simmons College*  
George Courtney Stucky  
Zelig Nathan Stutz  
John TenHave, A.B., *Hope College*  
James Worth Townsend  
Wilbur Dean Towsley  
†George Ray Upton  
Verne Levi Van Duzen, B.S.,  
*Alma College*  
†Frank VanSchoick

†John Frederick Vick  
†George Thatcher Waggoner  
Jesse Paul Walker  
Arch Walls  
Howard Carlton Walser, B.S.  
William Thomas Williams, A.B.,  
*Muskingum College*  
†Inez Razeda Wisdom  
Austin Roberts Wolfe, A.B.,  
*Park College*  
Donald Rhodes Wright  
John Frederick Yonkman

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## LAW SCHOOL

### BACHELOR OF LAWS

Milton Ralph Atlas  
Abraham Herman Baron  
Nayf George Bashara  
Leland Richard Boyd  
Joseph Bernard Boyle  
Paul Snodgrass Brady, A.B.  
Joseph Leo Cohen  
John Corcoran Cowing  
Claud Edmond Crandall  
Frederick Bartolus Darden  
Richard deNogel, A.B.  
Marvin LeRoy DeVries  
Austin Miller Frease, A.B.  
Joseph Freedman, A.B.  
Gorden Michaelis Gale  
John Jacob Goshkin  
Guy Theron Graves, Jr.  
Patrick Joseph Hally, Jr., A.B.,  
*University of Detroit*  
Stanley Stimson Hawkes  
Howell Edward Hays, A.B.  
George Hendrick Heideman,  
A.B.  
Marion Rockefeller Hersman,  
A.B., *West Virginia University*  
Franklin Brokaw Hettinger, A.B.  
William Wade Hinshaw, A.B.  
*As of the Class of 1916*

Robert Hollowell, Jr.  
Joseph Clarence Hooper  
Roy Peyton Hull  
Edward John Jeffries, Jr.  
Zachariah Justice,  
Roland Otto Kern, A.B.,  
*Alma College*  
Robert Ottis Kerr  
Kenneth Clifford Klepser, A.B.  
Fred Dewey Leonard  
Rollie L. Lewis,  
*As of the Class of 1906*  
Llewellyn Edward Lloyd, A.B.,  
*Pennsylvania State College*  
Chalmers Leavitt McGaughey,  
A.B., *Butler College*  
Mahlon Jones Macgregor  
George Francis Malcolm  
John Edward Maurice Merrill  
Earl Miles  
Gilbert Nelson  
Haskell Linton Nichols  
Roy Thomas Noonan  
Maurice Ralph Norcop  
Wesley L. Nutton, Jr.  
Gerald Kelly O'Brien  
William Henry Older, A.B.,  
*Adrian College*



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Harry Dale Reber,	Wayne VanOsdol
<i>As of the Class of 1917</i>	Roger James Vaughn, A.B.,
William Cyrus Rice, III	<i>Knox College</i>
Justin A. Roberts	William Robert Walsh
Glenwood Washington Rouse,	George William Watson, A.B.
A.B.	Ben Walter Weir
Milton John Sallwasser	Estell Marion Wells, A.B.,
George Howard Edward Smith	<i>University of Illinois</i>
Russell Warren Smith, A.B.	Harrie Lawson Wickey
Harold Eberhardt Storz	Lewis Ronald Williams, A.B.
Rodney Leo Stuart	William Hazen Willmot
Loren Edgar Sullivan	Herbert Earl Wilson, A.B.,
Rhe O. Tague	<i>Penn College</i>
Frank Joel Treckelo	John McAfee Winters, Jr.
James Napoleon Trumb'e	Walter Edward Wobrock
Thomas Ingle Underwood, A.B.	Fu Kun Wu
Laurence Reed VanNess, A.B.	Christian Marcus Youngjohn

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### JURIS DOCTOR

William Henry Bales, A.B.,	Clyde Young Morris, A.B.
<i>DePauw University</i>	<i>University of New Mexico</i>
John Wendell Bird, A.B.,	Arthur Frederick Neef, A.B.
<i>Albion College</i>	Frank Merrill Parrish, A.B.,
Earl Francis Boxell, A.B.	<i>Allegheny College</i>
William Edward Burby, A.B.	Henry Glenn Ross, A.B.
George Pierce Cantrell, LL.B.	Benjamin Theodore Smith, A.B.
Ralph Moore Carson, A.B.; A.B.,	Paul Melanchthon Tedrow, A.B.,
<i>Oxford University</i>	<i>Kalamazoo College</i>
Wade Parks Connell, A.B.	George Oliver True, A.B.
Elwyn George Davies, A.B.	Pao Li Tsiang, LL.B., <i>Comparative Law School of China</i>
Earl Waring Dunn, A.B.	Gladys Wells, A.B.,
Laylin Knox James, A.B.	<i>North Carolina College</i>
Harold Andrew Jones, A.B.	Thomas Joy Whinery, A.B.
George Washington Manderbach, A.B.	Frederick Fullerton Wynn, A.B.
William Henry Messinger, A.B.	

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### MASTER OF LAWS

Yuan Mei Chang, LL.B., *Comparative Law School of China*

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## COLLEGE OF PHARMACY

### PHARMACEUTICAL CHEMIST

Helen Anderson  
Irene Elizabeth Baisley  
Charles Leslie Carter  
Hugh Edwin Caskey  
Omar Freeman Dickrager  
Vera Catherine Eagen  
Harvey Harold Elsoffer  
Frederick Ludwig Fischer  
Amos Ludwig Kroupa  
Raymond Morris  
Wilber Nelson Rutherford

John Gideon Searle  
Edward Aloysius Slazinski  
Raymond Clyde Smith  
Herbert Allan Stewart  
Walter Dennis Strother  
Russell Lowell Taylor  
Robert Daniel Thomas  
Charles Merville Warner  
Carol Newton White  
Harvey Allan Whitney  
Milton Carl Zink

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### BACHELOR OF SCIENCE (in Pharmacy)

Helen Anderson  
Irene Elizabeth Baisley  
William John Bonisteel  
Troy Cook Daniels, Ph.C.  
Harvey Harold Elsoffer

Frederick Ludwig Fischer  
Alice Hoover  
Russell Lowell Taylor  
Theodore Fredrick Thorsberg

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## COLLEGE OF DENTAL SURGERY

### DOCTOR OF DENTAL SURGERY

Ray John Albright  
Russell George Alexander  
George Robert Anderson  
Henry A. Anderson  
William Ellsworth Annis  
Glen Clarence Bean  
Hjalmer Henry Bergh  
A.B., *Augustana College*  
Harold Duane Billmeyer  
Ernest William Binkley  
George Edward Bonner  
Frederick Harold Bradshaw  
Oswald Edward Brodersen  
Howard Houston Burkart  
DeLloyd Forrest Byers  
George Carlson  
Frank Salem Cartwright

Amon Jerrold Clark  
Eugene Matthew Clifford  
Gerald Cohen  
Samuel Cohn  
Garrett Dille Conover  
Harry Clifford Coy  
Paul Stanley Crane  
Frank Thomas Czyns  
Samuel Budd Danto  
Robert Franklin Deebach  
Johannes Strydom deKlerk  
Harry Arthur Dengler  
Glenn Philip Dodds  
Casper Melchior Droste  
Theodor Eugene Eger  
Donald Horace Erpelding  
James Alford Evans

George Henry Fisch  
 Alfred Irving Frankfurth  
 Harry Meyer Friedman  
 Benjamin Franklin Fruehauf  
 Kirk Gardham  
 Alan Culver Gibson  
 Richard Harold Gier  
 Austin Albert Gillhooley  
 Arthur Archie Ginsberg  
 Blair Alexander Glennie  
 Harry Goldin  
 Maurice Goldstick  
 Walter Caldwell Gregg  
 Robert Smith Gregory  
 William Wolfe Greenburg  
 Gert Hendrik Grobler, A.B.,

*Transvaal University*

James Stanley Grosse  
 Raymond Joseph Hallinen  
 William Charles Hayes  
 Freeman Bowdle Hoover  
 Philip Jay  
 Robert Walter Johnson  
 Samuel Keller  
 Charles Audrey Kelly  
 Solomon Kesler  
 Milton Max Ketcik  
 Joseph Louis Kleinstiver  
 James Raymond Ladd  
 George LeBaron Lockwood  
 Harry White Lundahl  
 Douglas Freeman McColl  
 William Hiram McCracken  
 William Robert McInnes  
 Clare K. Madden  
 Duane Bleekman Madison  
 Jan Stephanus Malherbe  
 Harold Vitalis Malin  
 Johannes Lodewikus Marais  
 Malin Dewey Martin  
 Erwin Fred Mast  
 George Erwin Meeker  
 Philippus Meiring  
 Hendrik Petrus van der Merwe  
 Don E. Moe  
 George Raymond Moore  
 Charles Fred Niendorf  
 Frederick Allatt Obrock

Martin Patrick O'Hara  
 Timothy O'Leary  
 James Edward Pagenette  
 Frank Anderson Puddefoot  
 Leo B. Purdy  
 Harry Edward Rinkel  
 George Bachman Reddin  
 Carlton Dana Reed  
 Francis Joseph Reichmann  
 Leon Jonathan Reigelman  
 Maurice Lyman Richards  
 Leslie Frederick Rittershofer  
 Cornelius Johannes van Rooijen  
 Louis Adriaan Roux  
 John Harvey Shackelford  
 Henry Victor Sheldon  
 Harry Wade Shields  
 William Sigle  
 Joseph Frank Smiggen  
 Laban Herbert Smith  
 Bernardus Zebbe Stegmann  
 William H. Stevens  
 Benjamin Hobert Stickney  
 Ralph Edwin Stonehill, B.S.

*Wooster College*

Floyd Erwin Straith  
 William Henry Sturm  
 Leonard Stutz  
 Chester F. Sulkers  
 Howard Arthur Tews  
 Lester Lee Thompson  
 Joseph Harold Todd  
 Joseph James Tolan  
 Charles Augustus Towsley  
 Charles Henry Truesdell  
 Fred Lytle Tucker  
 William Joseph Vidaver  
 Matthijs Strijdom deVilliers  
 Reuben Andrew Wagner  
 Raymond William Walmoth  
 George Franklin Weaver  
 Ernest Edmund Whale  
 Charles Abbs Wilkie  
 Lee George Wilson  
 Robert McMaster Winslow  
 William Gersen Zieve  
 Landis Myron Zimmerman

## SCHOOL OF EDUCATION†

### BACHELOR OF SCIENCE IN EDUCATION

\*Bert Norwood Blakeslee  
Ruth Melvina Green

\*Margaret Rebecca Joseph  
Clair VanNorman Langton 4

### BACHELOR OF ARTS IN EDUCATION

Helen Alexandra Allan  
Elizabeth Grace Appleby  
Gladys Mary Barker  
Clyde Erwin Barnett  
Margaret Rose Barton  
Thomas Alfred Barton  
Leander Horace Beach  
Andrew Carmer Beam  
Harold Joachim Becker  
Lina Wilhelmina Benzin  
Emily Hannah Beutler  
Ora May Carrel Birtch  
Helen Russell Blackwood  
Harry Jacob Brevis  
Gladys Emily Burrett  
\*Katherine Campbell  
Mary Conger Case  
Lynda Iona Chambers  
Carl Clayton Chandler  
\*\*Martha Jane Chapin  
\*\*Mary Chilton  
Myra Elizabeth Cobaugh  
\*\*William Frederick Jekel De-  
Jongh  
Wilma Adaline Demuth  
Marian Veronique Devine  
Katharine Eloise Dodsley  
Anna Mae Doll  
Albert Daniel Dotter  
Clarence Oliver Duncan  
Minnie Luella Eastman  
Helen May Elliott  
William Austin Ellis  
Theodore Willis Flintoff

\*Glee Eleanor Fosler  
Beulah Mae Fox  
Herbert Rolfe Fox  
Mabel Welma Fox  
Roy K. Gilmore  
Evelyn Goldman  
\*Andrew Jackson Green  
Bertha Ann Green  
Walter Frederic Gries  
George Frank Gruenbauer  
Margaret Lucile Hambley  
John Jacob Hamel, Jr.  
Julia Han  
Eunice Hilda Hannan  
Jasper Jacob Hieftje  
\*Herold Christian Hunt  
Franklin Samse Huyck  
Ann Jacobson  
Irene Frances Jorae  
Mae Lenore Kendall  
Elizabeth Enid Loomis Kerr  
Edith Lucile Klotz  
Dorothy Cecilia Koepel  
John Korolishin  
Stanley Otis Legg  
\*\*Dorothy Benadena Lippold  
Clare Collette Logie  
Henry Richard Loukusa  
Glendora Isabelle McComb  
Louise Parkhill MacGillivray  
Donald Stinson McGuire  
Margaret Georganna MacInnis  
\*Nan Muir Martin  
Phyllis Lucerne Mellencamp

† Those graduates of the School of Education whose names are preceded by an asterisk (\*) receive their degrees "With distinction"; those whose names are preceded by a double asterisk (\*\*) receive their degrees "With High Distinction."

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Benjamin Mendel Michaelson	Jeanette Sitler
Otis Morton Miles	Olive Edna Smallidge
Ann Carter Moncure	Frank Smith
Beulah Marie Morency	*Irma Hudson Smith
Howard Maurice Murphy	*Helene Charlotte Sooy
Arthur Otto Nichols	Gladys Stanley Squire
Edith Genevieve Nolan	**Isadore Stark
Celia M. Olney	*Florence Theresa Storms
Laurens Alfred Packard	Arthur Tracy Stoughton
Alice Drinan Perkins	Benjamin Greene Sutton
John Dewey Petersen	Agnes Diehl Sweeney
Hagle Quarnstrom	*Mary Austin Thiel
Fannie Maude Ransom	**Jerome Gale Thomas
Wilferd Pascal Rayner	Lamora Thurman
Donald Wells Ressler	*Margaret Elsie Toles
Clinton Allen Rice	Lucille Jane Troy
Marshall Foster Richards	*Lucy Southworth Turner
Lyda Ruth Rideout	Addison Dunbar Van Aken
Abigail Roberts	Hazel Vanatta
Aubrey Eugene Roberts	Edward Christopher VanHorne
Marguerite Maryette Rose	Eliphalet Forrest Walcott
Ralph Rourke	Margaret Walsh
Hinda Ruwitch	Grace Winifred Walz
Maryette Ryan	Helen Searls Wells
Myrtle Carlotta Schafer	Edith Ione Westfall
**Margaret Sena Schmutz	Marion Emma Wheeler
Irene Loraine Schultz	Dorothy Ross Abernathy White
Margaret H. Sellman	**Henrietta Lizzetta Wolf
Lois Belle Sense	Helen Scott Wood
Ethelyn Mary Servis	Nora L. Wood
Bernice Muir Shumar	Helen Nancy Woodruff
Margueret Alice Simmons	Victoria Emma Louise
**Millicent Coral Sinden	Wordlemann

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## GRADUATE SCHOOL

### MASTER OF SCIENCE

(in Forestry)

Edward Winchester Littlefield,	John Vernon Knox Wagar,
B.S.F.	B.S.F.
Howard Mason Lumsden, B.S.F.	3

### MASTER OF SCIENCE

(in Chemistry)

Selma Laura Bandemer,	Harvey McCormick Trimble,
B.S. (Chem.)	B.S. (Chem.)
	2

**MASTER OF SCIENCE**

**(in Engineering)**

- |   |  |
|---|--|
| George Moyer Bleekman, B.S.E.   | William Francis Marande, B.S.E.                                |
| Arthur Taylor Bragonier,<br>B.S.C.E., <i>West Virginia</i><br><i>University</i> | Francis Irwin Maslin, B.S.,<br><i>University of California</i> |
| William Andrew delValle, B.S.E.   | Edward Frederick Moore,<br>B.S.E., A.B.                        |
| Luman Youngs Deuchler, B.S.E.   | Lester Augustus Pridgeon,<br>B.S.E.                            |
| William LaVilla Fink, B.S.E.  | Elliott Gray Reid, B.S.E.                                      |
| William Jackson Groves,<br>B.S.C.E., <i>University of Mis-</i><br><i>souri</i>  | John Dolson Slye, B.S.C.E.,<br><i>University of Colorado</i>   |
| Donald Edgar Herringshaw,<br>B.S.E.   | Edwin Frost Smellie, B.S.E.                                    |
| William Haller Hubner,<br>B.S.M.E., <i>University of Pitts-</i><br><i>burgh</i> | Clinton Alden Springer, B.S.E.                                 |
| Warren Lee McCabe, B.S.E.   | Edward A. Stalker, B.S.E.                                      |
| John Carter McCalmont, B.S.E.   | George Richard Strimbeck,<br>B.S.E.                            |
|   | John Carpenter Wood, B.S.E.                                    |
|   | Henry Why Yee, B.S.E.  |

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**MASTER OF SCIENCE**

- |  |  |
|--|--|
| Stephen Stanley Attwood, B.S.E.  | Genpachiro Kusano, B.S.E.,<br><i>Higher Technical School of</i><br><i>Kumamoto</i>                       |
| Egbert King Bacon, B.S.  | John Wood McDonald, B.S.E.   |
| Estella Buffington, B.S., <i>Iowa</i><br><i>State College</i>                        | Andrew Lincoln Miller, B.S.,<br><i>University of Minnesota</i>   |
| Ernest Knight Chapin, A.B.   | William Marsh Myers, B.S.,<br><i>Syracuse University</i>   |
| Cheng-Hsien Henry Chen,<br>B.S.E.  | Lucile Franklin Orr, B.S.,<br><i>Parsons College</i>   |
| Norman Ellsworth Clarke,<br>A.B., <i>Central State Normal</i><br><i>School, M.D.</i> | Harold Judson Osterhof, A.B.,<br><i>Hope College</i>   |
| Kanji Egi, Graduate, <i>Osaka</i><br><i>Technical College</i>                        | Thomas David Phillips, A.B.,<br><i>Oberlin College</i>   |
| Chester George Fuss, Ph.C.,<br>B.S.(Phar.)   | Alden Franklin Roe, B.S.   |
| John Franklin Gordon, Gradu-<br>ate, <i>United States Naval</i><br><i>Academy</i>    | Esther Blick Sanders, A.B.,<br><i>Adrian College</i>   |
| Elmer Lionel Hammond, Ph.C.,<br>B.S.   | Juan Cruz Suguitan, B.S.E.   |
| Edward Fuller Holden, B.S.<br><i>Pennsylvania State Co</i>                           | Eleanor Mildred Swanson, A.B.,<br><i>Oberlin College, B.S.(Ed.),</i><br><i>Kent State Normal College</i> |
| Bessie Bernice Kanouse, A.B.   | Robert Razey Tanner, B.S.  |
| Harther Lewis Keim, B.S., M.D.   | Ying Ming Tse, B.S.E.  |

John W. Vanderwilt, A.B.  
 Maurice VanLoo, A.B., *Hope College*  
 Leonard Ranson Wagener, Ph.C.,  
 B.S.(Phar.)  
 Edward Roger Washburn, B.S.

Stuart Marcus Weaver, B.S.E.  
 Shiu Hung Wong, B.S.  
 Margaret Newell Woodwell,  
 A.B., *Smith College*  
 Melissa Hazel Cobb Worth, B.S.

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## MASTER OF ARTS

Howard Buttolph Allen, A.B.,  
*Albion College*  
 Monica Minerva Allen, Ph.C.,  
 B.S.(Phar.)  
 Margaret Irma Anschutz, A.B.  
 Charles LeRoy Anspach, B.S.,  
*Ashland College, A.M., ibid*  
 Octave Antonio, A.B.  
 Edith Marie Aylard, A.B.,  
*Greenville College*  
 Helen Tarleton Bailey, A.B.  
 Leland Dewitt Baldwin, A.B.,  
*Greenville College*  
 Sarah Elizabeth Bangs, A.B.  
 Barbara Haecker Bartlett, B.S.,  
*Columbia University*  
 Lola Maria Bates, A.B., *Hillsdale College*  
 Crate Beck, A.B., *Tri-State College*  
 Clara Cecile Bice, A.B., *Huntington College*  
 George Edmund Bigge, A.B.  
 Dorothea Bishop, A.B.  
 Clarence Harlow Blanchard,  
 A.B., *Albion College*  
 Margaret Wells Boland, A.B.,  
*Vassar College*  
 Warren Edward Bow, B.S., *University of Illinois*  
 Warren Espy Bower, A.B.,  
*Hillsdale College*  
 Robert D. Brackett, A.B.,  
*Northwestern University*  
 Frederick Alden Bradford, A.B.  
 Cleve Russell Bradshaw, A.B.,  
*Michigan State Normal College*  
 Howard Linnell Briggs,  
 B.S.(Ed.), *Carnegie Institute of Technology*

Gertrude Edith Brock, A.B.  
 Forman George Brown, A.B.  
 Frances Josephine Brown, A.B.  
 Wesley Laverne Brown, A.B.,  
*Albion College*  
 Laverne Burchfield, A.B.  
 Jean Gladys Caldwell, A.B.,  
*Muskingum College*  
 James Thomas Caswell, A.B.  
 Chung Whan Cho, Ph.B.,  
*Berea College, A.B., ibid*  
 Gage Ellis Clarke, A.B.  
 Lois Merriam Cochran, A.B.  
 Helen Virginia Conklin, A.B.,  
*Smith College*  
 Lettie Lenore Conover, B.S.  
 John Richard Cottin, A.B.  
 Helen Grace Cady Courtright,  
 A.B.  
 Clarence John deBoer-Cummings, B.S., *Kenyon College*  
 Peter H. Darpin, A.B.  
 John Martin DeHaan, A.B.,  
*Hope College*  
 Clinton Wheeler Douglas, A.B.,  
*Hillsdale College*  
 Lorena Lamborn Dowlin, A.B.,  
*Oberlin College*  
 Stephen Maynard Dudley, A.B.  
 Nelson Winfred Eddy, A.B.  
 Frank Egbert Eggleton, A.B.,  
*Hillsdale College*  
 Marion Isabella Moon Eich,  
 A.B.  
 Jennie Margaret Ellingson,  
 A.B., *University of Utah*  
 Carlos Sebastian Esteves, A.B.  
 Mary Frances Farnsworth, A.B.  
 Michael De Filippis, Ph.B.,  
*Brown University*

- Harris Francis Fletcher, A.B.  
 Adelbert Ford, A.B.  
 Eliza Ellen Fyan, A.B.  
 Truman Fontanelle Galt, A.B.,  
*Coe College; B.D., Chicago  
 Theological Seminary*  
 Irma Hazel Giddings, A.B.  
 Benjamin Bear Gould, A.B.  
 Laurence McKinley Gould, B.S.  
 George Claude Graham, A.B.,  
*Geneva College*  
 Joanna Albecca Graham, A.B.  
 John Odus Grimes, B.S.(Ed.),  
*Ohio University*  
 Richard John Hager, A.B.,  
*Ilope College*  
 Agnes Anna Haire, A.B.  
 Asha Latika Halder, A.B.,  
*Calcutta University, A.M.,  
 ibid*  
 Don Harrington, A.B.  
 Stephen Conger Hathaway,  
 A.B., D.B., *Oberlin College*  
 Cordelia May Hayes, A.B.  
 Blanche Maria Hazelton, A.B.,  
*Wellesley College*  
 Abraham Herman, A.B.  
 Julius John Herscher, A.B.  
 Raymond Hoekstra, A.B., *Cal-  
 vin College*  
 Emma Mabel Holbrook, A.B.  
 Benjamin John Holcomb, B.S.,  
*Michigan Agricultural College*  
 Marina Louise Holmes, B.S.,  
*Middlebury College*  
 Elizabeth Beswick Holt, A.B.,  
*Vassar College*  
 Hirsch Hootkins, Ph.B., *The  
 University of Chicago*  
 Agnes Harriet Houghton,  
 A.B., *Wellesley College*  
 Delina Blanche Howell, A.B.  
 Mary Fuller Howes, A.B.  
 Rollin Clarence Hunter, A.B.  
 Manley Elwood Irwin, A.B.,  
*Michigan State Normal Col-  
 lege*  
 Thelma Gray James, A.B.  
 Marguerite Jenkins, A.B., *Col-  
 lege of William and Mary*  
 Wilmer Atkinson Jenkins, B.S.,  
*The University of Chicago*  
 Anthony Joseph Jobin, A.B.,  
*Harvard University*  
 Alvin Walter Johnson, A.B.,  
*Emmanuel Missionary College*  
 Ichizo Kawasaki, Certificate,  
*Tokyo Higher Normal College*  
 Marguerite Sabin Kerns, A.B.  
 Maurice Reed Keyworth, A.B.,  
*Michigan State Normal Col-  
 lege*  
 Frieda Annetta Kiefer, A.B.,  
*Ohio State University*  
 Ira Kranklin King, A.B.  
 Esther Lois Kinslev, A.B.,  
*Indiana University*  
 Bruce Winton Knight, B.S.,  
*University of Utah*  
 Josephine Violet Lang, A.B.  
 David Wonchul Lee, A.B.,  
*Albion College*  
 Mary Eleanor Lennon, B.L.  
 Archie George Leonard, A.B.  
 Emma Gertrude Leonard, A.B.,  
*Western College*  
 Fred Dewey Leonhard, A.B.  
 Ben William Lewis, A.B.  
 Julia Lockwood, A.B.  
 Gertrude Marie Lucas, A.B.,  
*Calvin College*  
 Harry Lawrence Lurie, A.B.  
 Jessamine Isabel Macdonald,  
 A.B., *Ursinus College*  
 Loratius Lucius McKenzie, A.B.  
 Mary Blanche Mann, A.B. in  
 Ed.  
 Phil Lewis Marsh, A.B., M.D.  
 Emma Clarissa Matthews, A.B.  
 Carl Frank Mayer, A.B.  
 John Merrill, A.B., *Michigan  
 State Normal College*  
 Arthur Ansel Metcalf, A.B.,  
*Michigan State Normal College*  
 Helen May Middleswart, A.B.  
 Otis Morton Miles, A.B. in Ed.



- Armand Rudolph Miller, B.S.  
 Harry Arthur Miller, A.B.  
 Gordon Richmond Mirick, A.B.  
 Oral Mirvin Misenar, A.B.,  
*Alma College*  
 Nellie Deborah Moehlmann, A.B.  
 Martha Helen Montgomery,  
 A.B., *Greenville College*  
 Emma Louisa Moon, A.B.,  
*Miami University*  
 Frederick James Mulder, A.B.,  
*Hope College*  
 Carl Albert Naether, A.B.,  
*Lenox College, A.B., University of California*  
 Veta Thorpe Nebel, A.B.,  
*University of Illinois*  
 Winifred O'Connor, A.B.  
 Elizabeth Hughes Oates, A.B.  
 Helen Anna Paris, A.B.  
 Mary Jeanette Pearl, A.B., *University of Toronto*  
 Alice Victoria Peterson, A.B.,  
*Adrian College*  
 Eugene Francis Powell, A.B.,  
*Ohio Wesleyan University*  
 William Prakken, A.B., *Hope College, Ph.B.*  
 Clarence Wesley Pratt, B.S.,  
*Valparaiso University, A.B.*  
 Gertrude V. Pratt, A.B., *Albion College*  
 Alta Viola Prescott, A.B., *Albion College*  
 Orlando Warren Qualley, A.B.,  
*Luther College*  
 Ernest John Reed, A.B., *Michigan State Normal College;*  
 A.B., *Adrian College*  
 Clair Reid, A.B., *Earlham College*  
 Miriam Elberta Hubbard Roelofs, A.B.  
 Jacob Burton Rogvov, A.B.  
 Carroll Goulding Ross, A.B.,  
*Middlebury College*  
 Isabel Brodrick Rust, A.B.,  
*Smith College*
- Jogendra Nath Sahni, A.B.,  
*Punjab University*  
 William Phillips Sandford, A.B.  
 Sydney Robinson Sarasohn, A.B.  
 Thornton William Sargent, Jr.,  
 A.B.  
 Evelyn Harwood Scholl, A.B.  
 Paul Gerard Schroeder, A.B.  
 Mary Mildred Schultz, A.B.  
 Martin Seven, A.B., *Calvin College*  
 George Alexander Smith, A.B.,  
*Michigan State Normal College*  
 Helen Mar Smith, Ph.B., *College of Wooster*  
 Walden Frederick Stamm, A.B.  
 Arthur Edward Stiles, A.B.  
 Marion Franklin Stowe, A.B.  
 William Melville Strachan, A.B.,  
 LL.B.  
 Mary Iva Surine, A.B.  
 Seymour Swets, A.B., *Calvin College*  
 Delmer William Taylor, A.B.,  
*Albion College*  
 Mary Grace Taylor, A.B.  
 Herbert McGeoch Telford, A.B.,  
*Muskingum College, A.B., Princeton University*  
 Grace Harriet Rose Thomasma,  
 A.B.  
 Fred Martin Thurn, B.S. in Ed.  
 Alice Lombard Vail, A.B.  
 David Alton Van Buskirk, A.B.  
 Gerrit T. VanderLugt, A.B.,  
*Calvin College*  
 Rena Rae Van Fossen, A.B.  
 James H. Voorhees, A.B.,  
*Michigan State Normal College*  
 John Panagiotis Vouvakis, Graduate, *Great National School of Constantinople*  
 Francis McLennon Vreeland,  
 A.B., *Alma College*  
 Lucy Ceng Wang, A.B.,  
*Morningside College*

Marion Alice Wanstrom, A.B.	Marjorie Madox Williams, A.B., <i>Wellesley College</i>
Annette Persis Ward, A.B., <i>Oberlin College</i>	Lu Willson, A.B.
John Wargelin, A.B., <i>Suomi College</i>	Jessie Wood Wilson, A.B., <i>Highland Park College</i>
Harold Herrick Warner, A.B.	Jade Yuk Ching Wong, A.B., <i>Mills College</i>
Francis Phelps Weisenburger, A.B.	Shao-Tseng Wu, A.B.
Margaret Wells Whiteford, A.B., <i>Cornell University</i>	Yuan-Yin Yang, A.B.

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### MECHANICAL ENGINEERING

David Jordan Conant, A.B., <i>Ieland Stanford University</i>	1
--	---

### DOCTOR OF PUBLIC HEALTH

Elmer Wilmot Campbell, B.S., <i>Colby College, C.P.H., Harvard Technical School of Public Health</i>	1
--	---

### DOCTOR OF SCIENCE

Anders Fredrik Lindblad, Dipl. Ingr., <i>Chalmers College of Technology</i>	Joaquin Meiorada Maranon, Ph.G., <i>University of the Phil- ippines, B.S.(Phar.), ibid, M.S.</i>	3
Emeterio Roa, A.B., <i>University of the Philippines, M.S.</i>		

### DOCTOR OF PHILOSOPHY

John Abram Aldrich, AB., <i>Albion College, M.S.</i>	William Harry Jellema, A.B., A.M.
Jean Paul Cooley, A.B., M.S.	Martin Alfred Larson, A.B., <i>Kalamazoo College, A.M.</i>
Darrell Haug Davis, A.B.	Elroy John Miller, B.S., M.S.
Kenneth Duncan, A.B., <i>Wabash College, A.M., University of Wisconsin</i>	Arthur Bernard Moehlman, A.B., A.M.
Louis Michael Eich, A.B., A.M.	Vernie Alton Moody, A.B., <i>Mer- idian College, A.M., Tulane University</i>
Glenn Clifford Forrester, B.S., M.S.	Amos Reno Morris, A.B., <i>Ohio State University, A.M., ibid</i>
Arthur Otto Groff, A.B., A.M.	Samuel Reynolds Parsons, B.S., <i>Massachusetts Agricultural College, M.S., Pennsylvania State College</i>
Ruth Harriet Hayes, B.S., <i>Illinois Wesleyan University, A.M.</i>	Everett Russell Phelps, A.B., <i>Clark College, A.M.</i>
Mark Lorin Ireland, B.S., <i>Mich- igan Agricultural College, M.E., Massachusetts Institute of Technology</i>	

---

Richard Alfred Rossiter, A.B., <i>Wesleyan University, A.M.</i>	Ernest Burton Skaggs, A.B., M.S.
Austin Guildford Schmidt, A.B., <i>St. Louis University, A.M.,</i> <i>ibid</i>	Charles Lyle Spain, A.B., A.M. Marian Herbert Studley, A.B., <i>Wellesley College, A.M.</i>
Clair Ketcham Searles, A.B.,	23-269-2157

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## HONORARY DEGREES

### MASTER OF ARTS

Sidney Corning Eastman, A.B.	Henry N. Stevens	
John Barnes Miller	Josiah Wyatt Willis, C.E.	4

### DOCTOR OF ENGINEERING

William Crozier	Bruno V. Nordberg	2
-----------------	-------------------	---

### DOCTOR OF SCIENCE

George Edmund de Schwenitz, M.D., LL.D.

### LITTERARUM HUMANIORUM DOCTOR

Wilbur Lucius Cross, Ph.D.	1
----------------------------	---

### DOCTOR OF LAWS

Benjamin Nathan Cardozo LL.D.	Victor Fremont Lawson
Harry Emerson Fosdick, D.D.	Frederick Wacir Stevens, LL.B.
John Franklin Jameson, Ph.D., Litt.D., LL.D.	Paul Vinogradoff, D.C.L., LL.D. 6-14-2171

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## DIPLOMAS OF GRADUATION

### UNIVERSITY TRAINING SCHOOL FOR NURSES

#### GRADUATE NURSES

Doreatha Blinn	Florence Leota Dayton
Mary Bernice Burrill	Dolores Demske
Clara Chartier	Ella Flanders
Emily Elota Cook	Frances Virginia Fulton
Mabel Helene Crandell	Alis Malinda Henrikson
Evelyn Dandoy	Hazelle Winifred Henrikson

Marjorie Ellen Hoar	Josephine Ethel Nichols
Wava Mary Imhoff	Borghild Klara Oas
Lois Jerrell	Natalia Perdomo
Esther Hildagard Knorr	Susie Barrett Presley
Maurine Kolk	Anna Louise Ray
Sylvia Kolk	Esther Hedwig Rehm
Helen Irene Laidlaw	Ruth Richardson
Janet Dykes Law	Rhea Rogers
Eliza Jane Leishman	Rosa May Sayles
*Ella Elizabeth McNeil	Violet Henriette Tessin
Mary Alice Markel	Honora Vink
Arda Pearl Muck	Vida Woods
Lorena Jane Murray	

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### **PUBLIC HEALTH NURSING GRADUATES**

Eva Dougan Calhoun	Grace Margaret Clemons
Helen Clare Canfield	Virginia Howell Hartwell

4

### **CERTIFICATE OF DENTAL HYGIENIST**

Virginia Louise Bürger	Marion Elizabeth Jarvis
Theris Louell Carr	Alice Ida Jayne
Muriel Vera Fletcher	Anna Cornelia Raubenheimer
Marion Elise Fox	Ruby Florence Smith
Helen Alice Fraley	Pauline L. Spring
Marion Josephine Hawkins	Mary Cecile Vollmayer
Catherine Louise Hullhorst	

13-54

## **SPECIAL CERTIFICATES**

### **TEACHER'S LIFE CERTIFICATE**

Reba Abramson	Lois Muriel Baker
Cedric R. Adams	Norma Lydia Balz
Ellerton Gordon Aldrich	Helen Virginia Barber
Helen Alexandra Allan	Gladys Mary Barker
Monica Minerva Allen	Clyde Erwin Barnett
Frances Margaret Ames	Josephine Barton
Arthur Christian Ammentorp	Margaret Rose Barton
Charles LeRoy Anspach	Thomas Alfred Barton
Virginia Elizabeth Anthony	Leander Horace Beach
Elizabeth Grace Appleby	Andrew Carmer Beam
Ruth Virginia Arie	Gertrude Dorothy Bean
Helen Levant Aubrey	Lucille Eleanor Bebeau

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Harold Joachim Becker	Charlotte Alice Cochran
Viola May Becker	Lois Merriam Cochran
Elizabeth Grace Bell	Ada Mary Cogswell
Lester Charles Bendle	Hal Samuel Conkey
Lina Wilhelmina Benzin	Lawrence Henry Conrad
Nora Lucinda Bethel	Clara Maude Cooke
Effie Carlotta Bettens	Elise Cooper
Emily Hannah Beutler	Madeline Dorothy Corlett
Adolph Edmund Bigge	Helen C. Crane
Ora May Carrel Birch	Helen Lucille Currie
Hazel Beatrice Black	Algot John Dahlberg
Helen Russell Blackwood	Gertrude Haskell Dates
Bert Norwood Blakeslee	Katharine Elaine Daugherty
Clarence Harlow Blanchard	Helen Alphena Davenport
Harriet Lucile Blum	Mamie Capen Degnan
Arend Edward Boer	Marjorie Miller Deitch
Florence Gillies Boomhower	William Frederick Jekel De-
Helen Corinne Bowers	Jongh
Elizabeth DeSynnamon Boyd	Dorothy Emily DeKleine
Mary Rebecca Boyd	Florence Louise Demrick
Harry Jacob Brevis	Wilma Adaline Demuth
Thelma Margaret Bristol	Fenno Edwin Densmore
Marjorie Irene Bronson	Marian Veronique Devine
Walter Albert Browe	Bessie Natalie Divine
Elizabeth Hope Browning	Helen Adeline Dixon
Ella Edith Bunting	Katharine Eloise Dodsley
Willetta Ethel Bunn	Anna Mae Doll
Celia Ida Burke	Albert Daniel Dotter
Gladys Emily Burrett	Clinton Wheeler Douglas
Florence Virginia Butcher	Dorothy Chase Douglas
Elsie Dorothea Butts	Margaret Alice Downing
Evelyn Warner Cady	Clarence Oliver Duncan
Katherine Campbell	Clara Leonora Eastlake
Mildred Pearl Campbell	Minnie Luella Eastman
Howard Burt Cannon	Helen May Elliott
Mabel Macqueen Carland	William Austin Ellis
Glen Everett Carlson	Mary Margaret Fair
Kathryn Clay Casey	Margaret Katherine Fairbanks
Lynda Ione Chambers	Margaret Clarisse White Fair-
Beatrice Lucine Champion	child
Carl Clayton Chandler	Hussein Shefik Feizy
Martha Jane Chapin	Irma Leona Field
Nathalie Eleanor Chapman	Violette Minnie Finsterwald
Iva Emily Chester	Isabel Fisher
Margaret Rees Christian	Theodore Willis Flintoff
Georgia Allen Church	Frances Mary Florer
Myra Elizabeth Cough	Glee Eleanor Fosler
David Glenn Cobb	Beulah Mae Fox

Herbert Rolfe Fox  
 Mabel Welma Fox  
 LaRoy Albert Froh  
 Grace Adaline Fry  
 Anna Elizabeth Gabler  
 Elva Lue'lla Galliver  
 Tacitus F. Gies  
 Roy K. Gilmore  
 Helen Virginia Glenn  
 Evelyn Goldman  
 Alva Joanna Gordon  
 George Claude Graham  
 Edith Dorothy Graves  
 Andrew Jackson Green  
 Bertha Ann Green  
 Ruth Melvina Green  
 Laura Gridley  
 Walter Frederic Gries  
 Mary Griffin  
 George Frank Gruenbauer  
 Mina Alberta Guilford  
 Helen Langerwisch Hall  
 Livingston DeVere Hall  
 Geneva LaVerne Hallenbeck  
 Catherine Rosina Halsey  
 Margaret Lucille Hambley  
 John Jacob Hamel, Jr.  
 Julia Han  
 Helen Jeannette Hanlon  
 Eleanor Armored Hannah  
 Eunice Hilda Hannan  
 Alice Catherine Hardenburgh  
 Helen Harding  
 Lela Blanche Harger  
 Mildred Evaline Harrington  
 Mary E. Harris  
 Sadye Lillian Harwick  
 Kathleen Hatten  
 Beatrice Helen Havinghurst  
 Elizabeth Marian Hawxhurst  
 Gertrude Ann Hayes  
 Caroline Elizabeth Heinz  
 Mary Henderson  
 Thelma Fidessa Henderson  
 Lillian Mae Herman  
 Jasper Jacob Hieftje  
 Vera May Hill  
 Gladys Hinmon

Beatrice Hoek  
 Rae Aaron Hoffman  
 Amelia Rose Hoheisel  
 Lawrence Huston Houtchens  
 Mary Lillian Howlett  
 Elizabeth Snow Hoyt  
 Genevieve Oweida Hoyt  
 Eunice May Humphrey  
 Catharine Elizabeth Hunt  
 Herold Christian Hunt  
 Grace Marian Hunter  
 Irene Lucille Hunter  
 Olive Estelle Hurlburt  
 George Rosewall Husband  
 Elizabeth Hutchens  
 Franklin Samse Huyck  
 Marguerite Mary Ingold  
 Frances Morgan Irwin  
 Egbert Raymond Isbell  
 Frances Dolores Jackson  
 Dorothy Jane Jacobs  
 Leone Rhoda Jacobs  
 Ann Jacobson  
 Edna Edyth Jarchow  
 Pearl Irene Jenne  
 Edith Antoinette Jensen  
 Oscar Martin Johnson  
 Mary Mildred Johnstone  
 Irene Frances Jorae  
 Natalie Frances Jordan  
 Margaret Rebecca Joseph  
 Bernice Dorothy Kahn  
 Ileon Kahn  
 Clare Gladys Kammer  
 Julia Caroline Kammer  
 Clyde Walter Kammerer  
 Helen Eva Kane  
 Vera Esther Katz  
 Anne Edith Keidanz  
 Doris Keller  
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 Mae Lenore Kendall  
 Elizabeth Enid Loomis Kerr  
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Harold William Beattie	Donald Joseph Fraley
George Cooper Beeman	Benjamin Gerber
Harold Eugene Belles	Robert Delos Gibson
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Harold Henry Hulson Chan-	Richard Gregory
ner	Otto Erwin Haass
Hung Pin Chen	Ralph Lawrence Hageameir
Harry Maurice Cherniak	Wendell Herrick
Smith Coleman Childs	Amelia Rose Hoheisel
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David Farnham Coe	John Francis Kenney
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Lemire Thomas Rice	Albert Whitehead
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Herman Everett Bartlett	George Edward Hoek
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**CERTIFICATE IN JOURNALISM**

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Laurence McKinley Gould 1-3

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Helen Isobel Brown	Ann Arbor
Helen Wilhelmine Brown	Jackson
Hiestand Edward Brown	Ann Arbor
Jeanette Patricia Brown	Hillsboro, Ill.
John Charles Brown	Butler, Ind.
Madeline Beadle Brown	Grand Rapids
Maryellen Brown	Grand Rapids
Meyer Monroe Brown, /	Traverse City
Noble Hamilton Brown	Detroit
Orie Earl Donald Brown	Spencer, Iowa
Pamela Brown	Schoolcraft
Raymond Dexter Brown	West Newton, Mass.
Robert Hamilton Brown	Detroit
Robert Judson Brown	Ypsilanti
Robert Parmelee Brown	Flint
Thaddeus James Brown	Manistee
William Clinton Brown, Jr.	Prescott, Ont.
William Fitzallen Brown	Iron Mountain
Ernest Winfield Brownbridge	Brockport, N. Y.
Gerald Edwin Browne	Detroit
Ruth Helen Browne	Detroit
Alfred Allen Browning	Port Huron
Douglas Hasking Browning	Iron Mountain
Gesina Faythe Brueck	Ann Arbor
Lucile Grace Marie Bruhns	Ann Arbor
Gertrude Frances Brummeler	Grand Rapids
Donald Recker Bruns	Woodville, Ohio
Maurice Hamilton Brush	Sarnia, Ont.
Paul Wheeler Bruske	Detroit
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 Joseph Earl Bryce  
 Stephen Dudley Bryce, Jr.  
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 Robert Stuart Buchanan  
 Anna Louise Buck  
 Marian Elizabeth Buck  
 Edward Marcellus Buckley  
 Ernestine Louise Buckley  
 Earl Fay Bucknell  
 John Oscar Buehler  
 Donald Clair Buehrer  
 Donald Judd Buell  
 Arthur Jerome Buffington  
 Laura Margaret Buffington  
 George Puffer Bugbee  
 Catherine Alice Buhner  
 John McClelland Bulkley, /  
 Helen Catlin Bullock  
 Leslie Stuart Bulman  
 Herbert Noble Bumpus  
 Howard Phillips Bundy  
 Mildred Elizabeth Burck  
 Annabelle Elizabeth Burdick  
 Eleanor Margaret Burdick  
 Gene Nicholas Burhans  
 †Robert Alden Burhans, m  
 Hallie Forrest Burk  
 Virginia Stevens Burke  
 Joseph Henry Burkhard  
 Annette Evylin Burkhardt  
 Lawrence Darius Burkhardt  
 Clarence Edwin Burkholder  
 Garnet Joseph Burlingame  
 Charles Albert Burnett  
 James Allison Burnham  
 John Burnham  
 Elizabeth Taylor Burns  
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 Kathryn Stetson Burns  
 Margaret Burns  
 †Howard Blue Burnside, m  
 Marvin Marion Burnside  
 David Victor Burnstein  
 Sarah Jean Burr  
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 Ann Arbor  
 Toledo, Ohio  
 Ann Arbor  
 Lima, Ohio  
 Morris, Ill.  
 St. Johns  
 Pontiac  
 Detroit  
 Sturgis  
 Detroit  
 Ann Arbor  
 Highland Park  
 Ann Arbor  
 Ann Arbor  
 Waukesha, Wis.  
 Archbold, Ohio  
 Detroit  
 Canton, Pa.  
 Sarnia, Ont.  
 Monroe  
 Ann Arbor  
 Monroe  
 Pittsburgh, Pa.  
 Pittsburgh, Pa.  
 Lansing  
 Lansing  
 Forest, Ohio  
 Grand Rapids  
 St. Joseph  
 Menomonee Falls, Wis.  
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 St. Clair  
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 Jackson  
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 Blissfield  
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 Ann Arbor  
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 Muscatine, Iowa  
 New Orleans, La.  
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George Wiley Campbell	Owosso
Kenneth Hoatson Campbel	Laurium
Phebe Virginia Campbell	L'Anse
Roderick Alexander Campbell	Detroit

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 Flora Lucille Canby  
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 Manuel Dayao Caparas  
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 Andrew Augustus Carnochan  
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 Kent City  
 Sparta  
 Addison  
 Addison  
 Butte, Mont.  
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 Yorktown, Ind.  
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 Charlotte  
 Bucyrus, Ohio  
 Ann Arbor  
 Ann Arbor  
 New York, N. Y.  
 Midland  
 Ann Arbor  
 Ann Arbor  
 Manila, P. I.  
 Lakewood, Ohio  
 Albion  
 Paducah, Ky.  
 Owosso  
 Owosso  
 Moline, Ill.  
 Moline, Ill.  
 Hammondsport, N. Y.  
 Tawas City  
 Jackson  
 Lima, Ohio  
 Ottawa, Ill.  
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Margaret Alice Chamberlain	Muskegon
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E. Tsung Vera Chang	Shanghai, China
†Min Shao Chang, g	Junan, China
Sien Tuh Chang	Shanghai, China
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Raymond Austin Chapman	South Rockwood
Reginald Burton Chapman	Aurora, Ill.
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Charles Mills Chase	Kalamazoo
Martha Chase	Toledo, Ohio
Mary Augusta Chase	Clearfield, Pa.
William Loudon Chase	Chicago, Ill.
Horatio Nien-Tsung Chen	Washington, D. C.
Ming-yi Ping Chen	Shanghai, China
Susan Siok-Kheng Chen	Chang Chow City, China
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Pao Chao Cheng	Shanghai, China
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Royal Frank Cherry	Grand Rapids
Willoughby Sprigg Chesley, Jr.	Washington, D. C.
Doris Marguerite Chesterfield	Detroit
Cheuk Shue Cheung	Canton, China
Robert Yow Chew	Oakland, Calif.
Robert James Chick, Jr.	Durand
Thomas Edward Childress	Charleston, W. Va.
Lyla Josephine Chisholm	Bay City
Warren Herbert Chittenden	Detroit
Florence King Chong	Sarnia, Ont.
Edna Cathryne Christensen	Short Hills, N. J.

Ruth Christensen  
 Cornelius Wells Christie  
 Alois Joseph Chronowski  
 Donald Bradley Chubb  
 Franklin Sunn Chun  
 Kenneth Merle Church  
 Winton Henry Church  
 Charlotte Frazee Clagett  
 Dale Jacob Claire  
 Ruth Gertrude Clapp  
 Blanche Martha Clark  
 Catharine Mary Clark  
 Charles Junior Clark  
 Chester Arthur Clark  
 Clyde Allen Clark  
 Frances Marie Clark  
 Gail Violette Clark  
 Grace Belle Clark  
 Harris Graham Clark  
 Harry Clinton Clark, /  
 Henry Fogle Clark  
 Howard Dean Clark  
 Ivan Stowe Clark  
 James Smith Clark  
 John Edmund Clark  
 Josephine Arena Clark  
 Robert Russell Clark, m  
 Sybil Grace Clark  
 Thurman John Clark  
 Constance Clarke  
 John Champ Clarke  
 Kathryn Louise Clarke  
 Norma Edith Clarke  
 Douglas Prescott Clawson  
 Helen Lucille Cleary  
 John Francis Cleary  
 Owen Jenks Cleary  
 Rae Abigail Clemo  
 Douglas Walter Clephane  
 Frederick Barney Cleveringa  
 Joseph Edward Clifford  
 Thomas Fleming Clifford  
 Dorothy Irene Cline  
 Esther Lou Cline  
 William Ward Clore  
 Bertha May Clyne  
 Jack Sheck Coates  
 Louise Clarissa Coates

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 Hamtramck  
 Romeo  
 Sacramento, Calif.  
 Port Huron  
 Ulysses, Pa.  
 Ontario, Ore.  
 Chelsea  
 Utica, N. Y.  
 Northville  
 Escanaba  
 Ann Arbor  
 Harbor Springs  
 Coldwater  
 Detroit  
 Ann Arbor  
 Three Oaks  
 Altoona, Pa.  
 Kansas City, Mo.  
 Canton, Ohio  
 Ann Arbor  
 Ann Arbor  
 Detroit  
 Evanston, Ill.  
 Ann Arbor  
 Conoquenessing, Pa.  
 Detroit  
 Altoona, Pa.  
 Woonsocket, R. I.  
 Beloit, Wis.  
 Hastings  
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 Upper Montclair, N. J.  
 Wyandotte  
 Rochester, N. Y.  
 Ypsilanti  
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 Chevy Chase, Md.  
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 Fort Wayne, Ind.  
 Colchester, Conn.  
 Ann Arbor  
 Ypsilanti  
 Winnetka, Ill.  
 Yale  
 St. Cloud, Minn.  
 Flint

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Lucy Ann Cochlin	Traverse City
Russell Clark Cochrane	Cleveland, Ohio
Martin Codel	Hibbing, Minn.
Elizabeth Cody	Flint
Joseph Cameron Cody	Newmarket, Ont.
Wallace Elwood Coe	Saline
†Warren Coe, g	Chelsea
William George Coffin	Phoenix, Ariz.
Hugh Coffman	Mount Morris, Ill.
Annetta Stow Cogshall	Grand Rapids
Alene Blitz Cohen	Louisville, Ky.
Daniel A. Cohen	Cincinnati, Ohio
Myron Theodore Cohen	Coshocton, Ohio
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Ethel Rhea Cohodas	Ishpeming
Frederick Lee Colby, Jr.	Detroit
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Kathryn Anne Louise Cole	Ann Arbor
William Harold Cole	Cass City
William Henry Cole	Hillsboro, Ill.
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Ray Edward Collins	Manitou Beach
Samuel Rafferty Collins	Negunsee
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Marion Francis Collison	Hollywood, Calif.
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Martin Harger Compton	Ann Arbor
Mary Josephine Compton	Ann Arbor
George Riley Cone	Perry, N. Y.
Donald Coney	Ann Arbor
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Margaret Myers Conklin	Ann Arbor
John William Conlin	Ann Arbor
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Alfred Barnes Connable, Jr.	Kalamazoo
James Hoban Connelly	Bear Lake
George VanAmber Conover	Flint
Thaddeus Sidney Conover	Flint
John William Conrad	Brookville, Pa.
Russell William Conroy	Battle Creek
John Charles Consroe	Cortland, N. Y.
Albert Franklin Cook	Bay City
Donald Odell Cook	Owosso
Evelyn Lucile Cook	Detroit

John Conway Cook	Detroit
Josephine Marie Cook	Davisburg
LeRoy Mace Cook	Athens, Pa.
Merritt Kenneth Cook	Fowlerville
Paul George Cook	Ypsilanti
Perry Adams Cook	Fowlerville
Wendell Joseph Cook	Flint
Mary Elizabeth Cooley	Ann Arbor
Mary Louise Coolidge	Stafford Springs, Conn.
Ruth Elizabeth Coon	Ann Arbor
Mary Louise Cooney	Highland Park
Florence Wanda Cooper	Miami, Fla.
George Lewis Cooper	Montclair, N. J.
Herbert Willison Cooper	Muskogee, Okla.
Leon Chester Cooper	Athens, Pa.
Lloyd Everett Cooper	Grand Rapids
Loretta Francis Cooper	Caro
Lucia Virginia Cooper	Plainfield, Ind.
Robert William Cooper	Two Harbors, Minn.
Persis Margaret Cope	Ann Arbor
Stuart Joseph Corbett	Menominee
Edward Townsend Corbus	Cleveland, Ohio
Hibbert Dell Corey	Sarnia, Ont.
Maude Marjorie Corey	South Haven
Ennis Henderson Corley, m	Ann Arbor
Dalton E. Corliss	Hart
John William Corneal, Jr.	Ann Arbor
Eva Lucile Cornell	Ann Arbor
Elmer Lewis Cornwell	Saginaw
Dorothy Challe Corrigan	Saginaw
Lenore Dunston Corson	Ann Arbor
Lora Belle Corson	Ann Arbor
Earl Wallace Cory, l	Blackfoot, Idaho
Floyd Willard Cory	Crete, Nebr.
Eliot Bowen Coryell	Birmingham
Elizabeth Jane Cossitt	Conneaut, Ohio
Frederick Henry Cossitt	LaGrange, Ill.
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Bernadette Marian Cote	Detroit
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Harold James Coules	Sudbury, Ont.
Dorothy Beatrice Coulton	Cleveland, Ohio
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Margaret Crawford Couper	Ann Arbor
Dwight Hawthorne Coursey	Ann Arbor
Ray Clark Coutts	Grinnell, Iowa
William Dean Coventry	Duluth, Minn.
Foster Arthur Covert	Ann Arbor



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Laurence Covitz	Flint
Harry Hamell Cowan	Chatham, Ont.
Florence Mabel Cowden	Ann Arbor
Marian Coy	Traverse City
Elizabeth Sarah Coyne	Detroit
Marguerite Coyne	Detroit
Ruth Elizabeth Cozine	Albion
Thomas Grasselli Crabbe	Cleveland, Ohio
Winifred Charlotte Craigie	Detroit
Marguerite A. Crain	Webster Groves, Mo.
Donald Wilson Craine	Altoona, Pa.
Carlos James Cramton	Maywood, Ill.
Richard Harvey Crane	Indianapolis, Ind.
Walter Lewis Craver	Youngstown, Ohio
Raymond Sidney Crow	Fairmount, Ind.
Charles David Crawford	Flint
Edward Owen Crawford	Ithaca
Eva Janette Crawford	Pontiac
Frank Leland Crawford	Corning, N. Y.
George Samuel Clyne Crawford	Cleveland, Ohio
Karl Rigley Crawford	Owosso
Laurence Everett Crawford	Findlay, Ohio
William Campbell Crowthorn	Ann Arbor
Cecil Osborn Creal	Jamestown, N. Y.
Stanley Carson Crighton	Fort Wayne, Ind.
Helen Crocker	Denver, Colo.
Charlotte Aileen Cromwell	Parkman, Ohio
Maxine Jane Cromwell	Chardon, Ohio
Mary Virginia Cronin	Marshall
Stanley Edward Cronwall	Oak Park, Ill.
Eleanor Evelyn Crook	Detroit
Moreau Stephen Crosby	Grand Rapids
Willard Barnhart Crosby	Grand Rapids
Florence Lydia Cross	Ann Arbor
Robert Neal Cross	Ann Arbor
Charles Willson Crossman	Detroit
Allin Bland Crouch	Detroit
Alma Westfall Crouse	Cleveland, Ohio
Doris Clark Crouse	Cleveland, Ohio
John William Croushore	Fayette City, Pa.
George Warner Crow	Marine City
Ralph L. Crow	Alpena
Berniece Crowder	Grand Rapids
Helen Elizabeth Crowe	Manistique
John Russell Crowe	Chicago, Ill.
Stanley Oliver Crowe	Manistique
Howard Ervin Crowell	Mount Morris, Ill.

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Wenonah Evangeline Cuddy  
Doyle Odell Culver  
Fred Calvin Culver  
William Chauncy Cumings  
Charles Bissell Cummings  
Charles Fitch Cummins  
Frank O. Cummins  
Kenneth Dewitt Cummins, /  
Miller Beharrell Curless  
Spencer Platt Curley  
John William Curran  
Dorothy Lorraine Currie  
Fillmore Smith Curry  
Dorothy Maxine Curtis  
Heber Rice Curtis  
Roger William Curtis  
William Gale Curtis, Jr.  
Elinor Douglas Curtiss  
Zenon George Czaja  
Francis Henry Daft  
LeRoy Oscar Dahlberg  
Walfred Andrew Dahlberg  
Bruce Walter Daines  
Robert George William Dalby  
Thomas Eugene Daley  
Paul David Dalke  
Stanley Jones Dalley  
John Vincent Daly  
Jenness John Dancer  
Marian Alexina Daniel  
Fred Henry Daniels  
George Irwin Daniels  
Richard Buckley Daniels  
Marion Evelyn Dankers  
William Lewis Daoust  
Lewis Arland Darling  
Wesley Chester Darling  
Charles Evans Daugherty  
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Hester Ann Daugherty  
Elliott Craig Davidson, Jr.  
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Lester Clarence Davidson  
Lillian Davidson  
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Saginaw  
Amherstburg, Ont.  
Manton  
Williamston  
Otter Lake  
Ann Arbor  
Lansing  
Harrisburg, Ill.  
Harrisburg, Ill.  
Fairmount, Ind.  
Verona, N. J.  
Casper, Wyo.  
Bradford, Pa.  
Cadillac  
Ionia  
Petoskey  
Chevy Chase, Md.  
Detroit  
Athens, Pa.  
Detroit  
Peru, Ill.  
Rochester, N. Y.  
Escanaba  
Highland Park  
Mount Clemens  
Detroit  
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Prior Lake, Minn.  
Detroit  
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Corning, N. Y.  
Mount Clemens  
Crown Point, Ind.  
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Ruth Virginia Davy	Evart
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Raymond Mills Dell	Ypsilanti
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Ethel Elizabeth Dempster	Saugatuck
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James Morris Dennis	Toronto, Ohio
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 Oviatt Edwin Desmond  
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 Carrow Flemming DeVries  
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 Robert Hall DeWeese  
 Homer Mortimer Dewey  
 Jane Dewey  
 Richard Sydney Dewey  
 Vesta Geraldine DeWitt  
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 Philip Dexter  
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 Hudson  
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 Evart  
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 Battle Creek  
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 Monroe  
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 Ludington  
 Plymouth  
 Batavia, N. Y.  
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 Sterling, Colo.  
 Ann Arbor  
 Ann Arbor  
 Ann Arbor  
 Harrisburg, Pa.  
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 Ann Arbor  
 Lansing  
 Aurora, Ill.  
 Jackson  
 Penn Yan, N. Y.  
 Dundee  
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 Cleveland, Ohio  
 Flint  
 Whitmore Lake  
 Grand Rapids  
 Fort Wayne, Ind.  
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 Colling  
 Lansing  
 Ann Arbor

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James John Doran	Grand Rapids
Joseph Edward Doran	Grand Rapids
Victor Ernsthausen Dornhoff	Toledo, Ohio
Felice Dorrance	Vicksburg
Ralph George Dorrance	Coldwater
Clare Olin Doster	Dexter
†Etruria Ivernia Doster, <i>ed</i>	Dexter
Mildred Augusta Doster	Dexter
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Edwin John Doty	Jackson
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Samuel Burton Doughton	Sparta, N. C.
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Alvin John Dower	Detroit
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Dorothy Dowsett	Jackson
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Richard Ferris Doyle	Galesburg
Thomas James Doyle	Negaunee
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Elizabeth Morton Drake	Ann Arbor
Marjory Hortense Drake	Ann Arbor
Margaret Elizabeth Draper	Detroit
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Sydney R. Drebin	Big Rapids
Earl August Drechsler	Oak Park, Ill.
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David Droutman	New York, N. Y.
James Arnold Dryer	Marion
†Theodore Harold Dubbink, <i>e</i>	Holland
Marion Jasmine DuBrie	Detroit
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Stephen Aloytious Dudek	Dunkirk, N. Y.
William Walter Dudek	Petoskey

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 Henry Lindsay Duff  
 †Flora Mildred Duffendack, *ed*  
 Elizabeth Ann Duffield  
 Henry Edward Duffield  
 Hugh Kirkwood Duffield  
 Marcus Brownson Duffield  
 Orma Haleene Dukes  
 †Faith Eldora Dumas, *ed*  
 Fred Darrow Dunakin  
 Anna Marie Virginia Duncan  
 Thomas Ireland Duncan  
 William Frederick Duncan  
 Dorothy Doris Dunlap  
 Homer Elton Dunlap  
 Theodore Lewis Dunlap  
 Ralph Dustman Dunnier  
 Donald Diver Dunn  
 Ethel Prescott Dunn  
 Fayette Smith Dunn  
 Gladys Edith Dunn  
 James Joseph Dunn  
 †Jacob Kyuang Dunn, *g*  
 Eugene Lawrence Dunne  
 Mary Louise Dunnebacke  
 Donald Willis Dunning  
 Zoe Cecelia Dunphy  
 Winston John Durant  
 Max Leo Durfee  
 †Ben Dushnik, *e*  
 Marion Louise Dutton  
 Gerald Oscar Dykstra  
 Herbert Rowe Earle, Jr.  
 Laurence E. Easley  
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 Francis Archibald Eastwood  
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 Dorothea Marie Eberle  
 John Russell Eberts  
 Charlotte Louise Eckert  
 Bernard Blakeman Eddy  
 George Manton Eddy, Jr.  
 Cecil Fredrick George Ede  
 Dain Hillard Ederle  
 Vernon Goodrum Edgar  
 Suzanne Helen Edgcombe  
 Alena Grace Edmonds  
 Andrews David Edwards

Pontiac  
 Lansing  
 Cole Camp, Mo.  
 Oak Park, Ill.  
 Grand Haven  
 Oak Park, Ill.  
 Detroit  
 Denver, Ind.  
 Detroit  
 Grand Rapids  
 Geyser, Mont.  
 Findlay, Ohio  
 LaSalle, Ill.  
 Quincy, Ill.  
 Youngstown, Ohio  
 Highland Park  
 Elkhart, Ind.  
 Lima, Ohio  
 Hastings, N. Y.  
 Chicago, Ill.  
 Hastings, N. Y.  
 St. Johns  
 Louisville, Ky.  
 Chicago, Ill.  
 Lansing  
 Charlotte  
 Toledo, Ohio  
 Rolla, Mo.  
 Ann Arbor  
 Detroit  
 Sycamore, Ill.  
 Allegan  
 Birmingham  
 Bloomdale, Ohio  
 Tokyo, Japan  
 Escanaba  
 Ann Arbor  
 Ashtabula, Ohio  
 Wyandotte  
 Grand Rapids  
 Battle Creek  
 Chicago, Ill.  
 Great Falls, Mont.  
 Grand Rapids  
 Crosswell  
 Benton Harbor  
 Hastings  
 Detroit

Frank Merriman Edwards	Utica, N. Y.
Helen Lorene Edwards	Peru, Ind.
Margaret Knowles Effinger	Ann Arbor
Carl George Egeler	Lansing
William John Eggenberger	Lansing
Theodore August Eggmann	East St. Louis, Ill.
Harold N. Ehrlich	Detroit
Eunice Louise Eichhorn	Port Huron
Kenneth Charles Eichhorn	Lakewood, Ohio
Herbert Myer Eiges	Elmira, N. Y.
Herbert Spencer Eiges	Detroit
Paul Leopold Einstein	Cleveland, Ohio
Carl George Eisele	Flint
Lloyd Edward Eisele	Phoenix, Ariz.
Lloyd Edwin Eisenwinter	Barre, Vt.
Euphemia Dorothy Eldon	Detroit
Esther Fox Eldred	Ann Arbor
Dorr Starling Elick	Payne, Ohio
Joseph Elkin	Mount Clemens
Ruth Stevens Elledge	Bismarck, Mo.
†Stanton Edwards Ellett, g	Ann Arbor
Margaret Aplin Elliot	Bay City
John Harlan Elliott	Ypsilanti
Richard Goodwin Elliott	Logansport, Ind.
Paul Cooper Ellis	Ann Arbor
Ralph Taylor Ellis	Ann Arbor
Wade Bishop Ellis	Bradford, Pa.
Carleton Stewart Ellsworth	Battle Creek
Arthur C. Elmer	Plymouth, Wis.
Robert Samuel Elster	Buffalo, N. Y.
Lois Elwood	Menominee
Addison Charles Ely	Rutherford, N. J.
Willard Hazen Emerick	Ann Arbor
Charles Bartlett Emery	Bedford, Ind.
Dorothy Maude Emery	Paola, Kans.
Florence Alton Emery	Portland
Mary Jeannette Emmons	St. Johns
Abbie Crandell Enders	Wooster, Ohio
Linford Harry Enders	Fenton
Robert Kendall Enders	Wooster, Ohio
Charles Daniel Endres	Poland, Ohio
J. T. Engle	Ann Arbor
Lee William Ensel	Springfield, Ill.
Fred Burton Ensminger	Lima, Ill.
Sanford Hayes Ensinger	East Aurora, N. Y.
Benedict William Eovaldi	Benton, Ill.
Hester Decker Eppens	Ann Arbor
Joseph Hugo Epstein	Chicago, Ill.

Paul Randolph Erickson	Lakewood, Ohio
Carl Oscar Erlanson	Aurora, Ill.
Charlotte Caroline Ermann	Detroit
Helen Esser	Detroit
Gerald Arden Estes	Detroit
William Brownlow Etheridge	Chattanooga, Tenn.
Leonard Bert Ettelson	Chicago, Ill.
Archibald Hughes Evans	Lansing
Clarence Francis Evans	Youngstown, Ohio
Evelyn May Evans	Detroit
†Kenneth Richard Leigh Evans, m	Jamaica, B. W. I.
Roland Palmer Evans	Berrien Springs
Ruth May Evans	Ann Arbor
William J. Evans	Detroit
†Arthur Lewis Evely, c	Pontiac
Bess Everett	De Kalb, Ill.
Walker Griffiths Everett	Holland
Madeleine Marie Evon	Detroit
Arline Jeannette Ewing	Detroit
Charlotta Josephine Ewing	Grand Rapids
Geneva Marian Ewing	Colfax, Ind.
Baxter Beach Fair, m	Durand
John Kitchener Fairbairn	Joliet, Ill.
Enola Gertrude Fairchild	Nanticoke, Pa.
John Kenneth Faist	Woodville, Ohio
Honora Byrtle Falconer	Grand Rapids
Myron Falk	Fort Wayne, Ind.
Olive Fast	Grover Hill, Ohio
Rowan Fasquelle	Petoskey
Laurence Harrison Favrot	Baton Rouge, La.
Harry Norman Faxstein	Kane, Pa.
Elwood Chester Fayfield	Buffalo, N. Y.
Henry S. Fechheimer	Chicago, Ill.
Edward Fee	Detroit
Fred James Feely	Detroit
Catherine Rita Feeney	Cheboygan
Kenneth Maxwell Fehlig	Belleville
Milton Emanuel Feiler	Louisville, Ky.
Nathan Paul Feinsinger	Buffalo, N. Y.
Elmer Daniel Feldkamp	Saline
Charles Kenneth Feldman	Hollywood, Calif.
Raymond Leroy Feldman	Cleveland Heights, Ohio
Warren Robert Feldtman	Toledo, Ohio
John R. Fellows	Lansing, Iowa
Lydia Mildred Felske	Detroit
Walter Alfred Fenstermacher, m	Three Rivers
Albert Abe Fenton	Detroit
Florence Abigail Fenton	Ann Arbor



James Alexander Ferguson	Detroit
John Ferguson, I	Detroit
James William Fernamberg	Grand Rapids
Mary Jean Ferner	Sturgis
George Francis Ferris	Utica, N. Y.
Joseph Patrick Ferris	Jersey City, N. J.
Lynn Watson Ferris	Ann Arbor
Eleanor Adelaide Ferry	Detroit
Carl Salvatore Fery	Colville, Wash.
Eunice Eleanore Fetterly	Chelsea
Helen Mae Fewtrell	Wyandotte
Florence Helen Fiebig	Grand Rapids
Gertrude Katherine Fiegel	Ann Arbor
Lucille Kunigunda Fiegel	Ann Arbor
Bertha Melissa Field	Ann Arbor
Charlotte Minerva Field	Shelby
Harold Franklin Field	Owosso
†Irene Rebecca Field, <i>ed</i>	Detroit
Gerrit Eli Fielstra	Muskegon
Collier William Filler	Sans-Souci
Leon Ames Filloon	Vermontville
Ronald Wilford Finch	Rockford
Joseph Jay Fineman	Detroit
Earle Carlton Fingerle	Ann Arbor
Carroll Raymond Fink	Juniata, Pa.
Frances Louise Fink	East Aurora, N. Y.
Max Finkleman	Middletown, Ohio
Charles Eliezar Finley	Albion
Elisabeth Alexander Finley	Dallas, Tex.
George Lewis Finley	Smithfield, Ohio
Ione Gaston Finley	Ann Arbor
Joseph John Finn	Chicago, Ill.
Frank Stephens Fiordelis	Detroit
Joseph Frank Fiordelis	Detroit
Helen Elizabeth Firestone	Cambridge, Ohio
Helen Marie Fischer	York, Pa.
Raymond Wellington Fischer	Saginaw
Ruth Goodall Fish	Pontiac
George William Fishel	Indianapolis, Ind.
Kirkland Estey Fisher	Ann Arbor
Lawrence Gannon Fisher	Downers Grove, Ill.
Richard Ray Fisher	Columbia City, Ind.
†Russell Arden Fisher, <i>e</i>	Ludington
Thomas Jacob Fisher	Pavilion, N. Y.
Marion Levi Fisk	Ann Arbor
George Farrington Fiske	Sherborn, Mass.
Thomas Eliot Fiske	Sioux Falls, S. Dak.
Hannah Ellen Fitch	Socorro, N. Mex

Katherine Elizabeth Fitch	Charlevoix
Margaret Blanche Fitch	Dallas, Tex.
Susan Hayden Fitch	Socorro, N. Mex.
Madaline Marie FitzGerald	Oberlin, Ohio
Russell Charles FitzGerald	Muskegon
Robert Keene Fitzpatrick	Princeton, N. J.
Thomas Alford FitzPatrick	Cuyahoga Falls, Ohio
Edwin Thomas Flader	Chicago, Ill.
Dennis Lee Flaker	Lansing
William McKinley Flarsheim	Louisville, Ky.
Richard Paul Fleckenstein	Ionia
William Fleischaker, I	Louisville, Ky.
Austin Fleming	Flint
Fred John Flom	Menominee
Douglas Flood	Kenilworth, Ill.
Florence Rowen Flook	Ann Arbor
Herbert Washburn Florer, m	Ann Arbor
Wallace McFarland Flower	Washington, D. C.
Edgar Martin Flowers	Ann Arbor
H. Ross Flowers	Lebanon, Pa.
Burton Dake Floyd	Cleveland, Ohio
Jean Marshall Fogle	St. Albans, W. Va.
Aileen Katherine Foley	Dollar Bay
Albert Jacob Foley	Dunkirk, N. Y.
George Winton Folkman	Warren, Pa.
†Lawrence Metcalf Folsom, g	Detroit
Thomas Edward Foote	Grand Rapids
Andrew Watt Forbes	Ann Arbor
Gladys Marie Ford	Bissfield
John Wilkes Ford III	Chicago, Ill.
Mary Josephine Ford	Shelbyville, Ky.
Prentice Cooper Ford	Brooklyn, N. Y.
Sylvester Ford	Ann Arbor
Frederick Kirk Formis	Iron River
Carl Victor Forslund	Grand Rapids
Newton Melville Forsythe	Joplin, Mo.
Bernice Mae Foster	Ann Arbor
Florence Mae Foster	Newberry
Harold James Foster	Menominee
James Clinton Foster	Newberry
Joseph Charles Foster	Lansing
Lawrence Judson Foster	Hudson
Ruth Mitchell Foster	Traverse City
Helen Annette Fowler	Pontiac
Clara Elizabeth Fox	Ann Arbor
Lewis Austin Fox	Watertown, N. Y.
Louis Arthur Fox	Cleveland, Ohio
Robert Matheson Fox	Grand Rapids

Stanley E. Fox	Detroit
Ethel Rebecca Fralick	Greenville
Carl Martin Frank	Detroit
Charles Henry Frank	Lakewood, Ohio
Helen Dorothy Frank	Terre Haute, Ind.
Hilda Lucille Frank	Reed City
Margaret Louise Frank	Ann Arbor
Daniel W. Frankel	New York, N. Y.
Leo Isaac Franklin, I	Detroit
Marjorie Franklin	Ann Arbor
†Janette Elizabeth Fraser, ex	Detroit
Louis Edward Fratcher	Springfield, Ill.
Julius Tait Frater	Detroit
Harold Frederick Freeborn	Hart
Louis Murray Freedman	Savannah, Ga.
Norman Freehling	Chicago, Ill.
Melvin Alexander Freel	Jackson
Hyman Freiberg	Cleveland, Ohio
Thomas Hart French	Muskegon
Rosalie Louise Frenger	Las Cruces, N. Mex.
Rosalind Freund	Toledo, Ohio
Richard Harold Freyberg	Goshen, Ind.
Florence Mary Fribley	Hancock
Harry Bernard Friedgood	Detroit
Ben Friedman	Cleveland, Ohio
Leah Sara Friedman	Tawas City
Harold Eugene Fritsche	Ann Arbor
Francis Asbury Fritz	Cass City
Harlan Froemke	Sheldon, N. Dak.
Florence Belle Fuller	Lansing
Frederic LeRoy Fuller	Yale
Harvey Thomas Fuller	Ann Arbor
Radcliffe Berwick Fulton	Lansing
Stanley Howes Fulton	Lansing
Alfred Charles Funke	Detroit
Helen Josephine Furber	Rahway, N. J.
Ellen Marie Furey	A'biar
Louis Clair Furniss	Nashville
Floyd Thaddeus Fuss	Pigeon
John Franklin Fitcher, Jr	Chicago, Ill.
Norman Gabel	Detroit
Walter Philip Gabel	Detroit
Lewis Miller Gabriel	Piqua, Ohio
Maurice Galanter	Bayonne, N. J.
Ann Elizabeth Gale	Lansing
George Jackson Gale	Nashville, Tenn.
Sara Pauline Gallagher	Bay City
Daniel Jack Gallancy	Rochester, N. Y.

Douglas Carlisle Gallery  
 John Edmond Galley  
 Louise Elizabeth Galloway  
 Ruby Green Galloway  
 Edwin Carl Galsterer  
 Rosina Barbara Galsterer  
 John Julian Galvin  
 Edward Ellsworth Gampher  
 Joseph Edward Gandy  
 Charles Wood Gannon  
 James Otis Garber  
 Martin Dudley Garber  
 Arnold Gustav Gardey  
 Lenore Douville Gardner  
 Marian Catherine Garfield  
 John Gray Garlinghouse  
 Margaret Jackson Garriott  
 Louis Joseph Garnow  
 Harriet Janes Garrison  
 Joseph Owen Gartner  
 Joseph Henry Gast  
 Benton Earl Gates  
 Daniel Clare Gates  
 Katie Ella Gatewood  
 Anthony Gaubis  
 Margaret Harriet Geddes  
 Maxine Elizabeth Geddes  
 Waldo Ernest Gehring  
 Elsa Lillian Geisendorfer  
 Ruth Evangeline Geniesse  
 Albert William Genske  
 Earl Robert Genthe  
 Donald Frederick Gentz  
 Edward Johnathon Germano  
 Abraham Germansky  
 Joseph Gershman  
 Harry Lewis Edward Gervais  
 Harold Bernard Gessner  
 Graham Earl Getty  
 Paul Geyser  
 Gaylord Edmund Gibbons  
 Charlotte Jane Gibson  
 Dorothy Gibson  
 Edward Thomas Gibson  
 Luis Gibson  
 William Alexander Gibson, Jr., I  
 Donald Whitney Gilbert  
 John Mairs Gilchrist

Caro  
 Ypsilanti  
 Hillsdale  
 Ashland, Nebr.  
 Frankenuuth  
 Frankenuuth  
 Youngstown, Ohio  
 Elkhart, Ind.  
 Spokane, Wash.  
 Gary, Ind.  
 Goshen, Ind.  
 Enid, Okla.  
 Saginaw  
 Ann Arbor  
 Albion  
 Detroit  
 Bedford, Ky.  
 North East, Pa.  
 Hartford  
 Wyandotte  
 New Orleans, La.  
 Columbia City, Ind.  
 Fort Dodge, Iowa  
 Canyon, Tex.  
 Newark, N. J.  
 Shreveport, La.  
 Shreveport, La.  
 Cleveland, Ohio  
 Ann Arbor  
 Ann Arbor  
 Fredonia, N. Y.  
 Wyandotte  
 Tonawanda, N. Y.  
 New York, N. Y.  
 Paterson, N. J.  
 Bayonne, N. J.  
 Detroit  
 Escanaba  
 Silver Spring, Md.  
 New York, N. Y.  
 Flushing  
 Grand Rapids  
 Newberry  
 Sylvan Lake  
 Montclair, N. J.  
 Detroit  
 Battle Creek  
 Chicago, Ill.

Henry George Gildner	Grand Haven
Ada Ruth Giles	Saginaw
William Bliss Giles	Blissfield
Doris Lucille Gilhams	Sturgis
Ellsworth William Gillard	Castalia, Ohio
†Helen Gillespie, g	Highland Park
James Totman Gillespie	Erie, Pa.
Margerita Mae Gillet	Ann Arbor
William Albert Gillette	Lakewood, Ohio
Fay Bartling Gillies	Windber, Pa.
Rexford William Gillies	Windber, Pa.
Robert Junior Gillingham	Bay Port
Frederick Edward Gilner	Grand Rapids
Russell Max Gilson	Shelby
Samuel Mire Gindy	Toledo, Ohio
Arnold Speare Gingrich	Grand Rapids
Douglas Richard Ginn	Detroit
Lillian Girard	Ann Arbor
Raymond Eugene Girardin	Detroit
Eugenie Marjorie Girtwine	Detroit
Horace Wesley Glasgow	Spencer, Iowa
Lyman Joyce Glasgow	Spencer, Iowa
Nathan H. Glass	Ahmeek
Therese Edith Glass	Ahmeek
Walter Sidney Glazer	Detroit
George William Gleasner	Buffalo, N. Y.
Phebe Marjorie Gleason	Decatur, Ill.
Frederic Samuel Glover, Jr.	Grosse Ile
Natalie Beach Glover	Ypsilanti
Nathan Arthur Gluckman	Brooklyn, N. Y.
Arthur William Gnau	Detroit
Stanley Joseph Gnitowski	Highland Park
Edwin Newell Goddard	Kalamazoo
Miriam Goddard	Detroit
Dama Adelaide Godfrey	Ann Arbor
Ernest Godfrey	Benton Harbor
Helen Florence Goetz	Toledo, Ohio
Alexander Carl Goetze	Ypsilanti
George Eugene Goldberg	Chicago, Ill.
Stewart Jacob Goldberg	Buffalo, N. Y.
Edward Lawrence Golden	Manistee
Lewis Alexander Golden	Highland Park
Seth Coleman Golden	Salt Creek, Wyo.
John Lyle Goldie	Dexter
Abraham Goldman	New Haven, Conn.
Bernard Leonard Goldman	Cleveland, Ohio
Eugene Goldman	Chicago, Ill.
Jacob Goldman	Bayonne, N. J.

Julian Nathan Goldman	Buffalo, N. Y.
Joseph David Goldsmith	Detroit
Louis Goldstein	Saginaw
Leonard John Goldwater	New York, N. Y.
Walter Delmar Goldwater	New York, N. Y.
Ephraim Roos Gomberg	Duluth, Minn.
Edmund Alphonse Gomolski	Toledo, Ohio
Dorothy Garton Gooch	Berkeley, Calif.
Clinton Howard Good	Faithorn
Marion Good	Toledo, Ohio
William Herbert Good	Tiffin, Ohio
Harriet Isabelle Goodall	Durand
Ralph Goodall	McGregor
Marjorie Jeannette Goodenow	Detroit
Erwin George Goodman	Batavia, N. Y.
Genevieve Louise Goodman	Ishpeming
Marguerite Julie Goodman	Schenectady, N. Y.
Preston Edwin Goodrich	Ashville, N. Y.
Russell Clayton Goodrich	Chicago, Ill.
Walter Stuart Goodspeed	Grand Rapids
Adolph Bartel Goodyear	Bloomdale, Ohio
Mary Ella Gorchofsky	Detroit
Bernard Donald Gordon	Chicago, Ill.
Jack Charles Gordon	Detroit
James Rankin Gordon	Scottdale, Pa.
Marjorie Carol Gordon	Detroit
John Christian Gorenflo	Grosse Point
Selden Hart Gorham	Grand Rapids
Raymond Paul Gorning	Detroit
Frances Margaret Gorsline	Battle Creek
William Maile Goss, I	Lakewood, Ohio
Louis Albert Gotting	Rockford
Alice Margaret Goudy	Avonmore, Pa.
Marian Elizabeth Gough	Flint
†Lucius Charles Gould, p	St. Charles
Harold Joseph Goulet	Midland
William David Gowans, I	Detroit
Chester Gower	Farmington, N. Mex.
Robert McKay Grab	New York, N. Y.
Harold Wilson Graff	Springfield, Ill.
Donald Bryanton Graham	Lansing
Frances Lillian Graham	Detroit
Majessa Melvina Graham	Detroit
William Franklin Graham	Detroit
Lena Bernice Graley	Rochester
Ingred Lois Granberg	Crystal Falls
Anna Grandy	Detroit
Frank Henry Granito	Bayonne, N. J.

David Marshall Grant	St. Louis, Mo.
Joseph Derby Grant	Ann Arbor
Lionel Alexander Grant	Milford
Arthur Owens Graves	Chicago, Ill.
Archibald Charles Gray	Petoskey
Charles McFeely Gray	Detroit
Albert Green	Detroit
Bernard Arnold Green	Mount Clemens
Carolyn Marie Green	Ann Arbor
Dora Katharyn Green	Birmingham
Ernest Goodwin Green	Grand Rapids
Geraldine McIntyre Green	Dowagiac
Harold Anthony Green	Grand Ledge
Lewis Green	Detroit
Manning Samuel Green	Detroit
Mary Leah Greenberg	Chicago, Ill.
Maurice L. Greenberg	Archbold, Ohio
Solomon Greenberg	Bayonne, N. J.
Arnold Samuel Greene	New York, N. Y.
Marian Eleanor Greene	Painesville, Ohio
Walter C. Greene	Goshen, Ind.
Milton Lester Greenebaum	Saginaw
Samuel Lewis Greenebaum	Louisville, Ky.
Lillian Elizabeth Greenland	Pittston, Pa.
Max Francis Greenman	South Haven
Edward Bertram Greenspan	Newark, N. J.
Dorothy Greenwald	Gary, Ind.
Gertrude Greenwald	Gary, Ind.
Alexander Leo Gregory	Ann Arbor
Bruce Robert Gregory	Ann Arbor
Edward Payson Gregory	Ann Arbor
Frances Elizabeth Gregory	Ann Arbor
Helen Gregory	Ann Arbor
Phoebe Bernice Gregory	Menominee
Magnolia Rudolphine Greilick	Traverse City
Carl Rudolph Grever	Buffalo, N. Y.
Earl Charles Grever	Buffalo, N. Y.
Winifred Gridley	Pleasant Ridge
Lucy Hermina Griem	Zenda, Kans.
Richard Simler Griest	Barnesboro, Pa.
Margaret Anna Griffin	Saginaw
Marion Eloise Griffin	Washington
Joseph James Griffith, Jr.	Wyandotte
Catherine Sigman Griffiths	Detroit
Marion Hugh Griffiths	Meriden, Kans.
William Everett Grinnell	Richmond
Donald Kenneth Grisier	Wauseon, Ohio
Ethel Griswold	Harvard

Lucile Gertrude Groff  
 Walter Carlton Groff  
 Edward Morton Grohs  
 Martha Christine Gronblad  
 Benjamin Aladar Gross  
 Arthur Herman Grossman  
 Milton Arnold Grossman  
 Fred Otto Groth  
 Jeanne Hastings Grover  
 Roy Braden Grubb  
 Charles William Grube  
 Abraham Lester Gruber  
 Allan Clarence Gruschow  
 Louis Joseph Guenin  
 Edgar Adolph Guensburg  
 Edwin Guest  
 Edward Henry Guethel  
 Henrietta Dorothea Guetschow  
 Richard Alan Gumberts  
 Ira E. Gumm  
 Henriette Marie Gunlach  
 Beulah Lewis Gustafson  
 Helen Lucile Gustine  
 Alton John Gutches  
 Eugene Henry Gutekunst  
 William Chase Guthrie, /  
 Edith Caroline Gutzeit  
 Earl Richard Guttенberg  
 Max Guttman  
 Idella Ford Gwatkin  
 Wilma Agnes Gwinner  
 Erwin Herman Haass  
 Phyllis Averill Haehnle  
 Edward William Haeker  
 Orval Frederick Hagemeister  
 Lowell Vernon Hagemeyer  
 Ruth Lucile Hagener  
 Clyde Lesalere Hagerman  
 George Sylvester Haggarty  
 Keith Leon Haid  
 John Bradley Haight  
 Lauren Clare Haight  
 Irene Mariam Haines  
 Clayton Gould Hale, /  
 Harold Leroy Hale  
 Elizabeth Rozilla Halfert  
 Ronald Theodore Halgrim  
 Allan Johnston Hall

Grand Rapids  
 Toledo, Ohio  
 Cleveland, Ohio  
 Escanaba  
 Glen Lyon, Pa.  
 Hawks  
 Youngstown, Ohio  
 Chicago, Ill.  
 Kalamazoo  
 Slippery Rock, Pa.  
 Saginaw  
 Detroit  
 Detroit  
 Saginaw  
 Menominee  
 Detroit  
 Kansas City, Mo.  
 Detroit  
 Evansville, Ind.  
 Onaway  
 Houghton  
 Ann Arbor  
 Benton Harbor  
 East Homer, N. Y.  
 Gowanda, N. Y.  
 Flint  
 Detroit  
 Rochester, N. Y.  
 Omaha, Nebr.  
 Battle Creek  
 Ann Arbor  
 Detroit  
 Jackson  
 Mount Clemens  
 Toledo, Ohio  
 Woodville, Ohio  
 Toledo, Ohio  
 Ludington  
 Ypsilanti  
 Wawaka, Ind.  
 Indianapolis, Ind.  
 Flint  
 Petoskey  
 Cleveland Heights, Ohio  
 Cleveland Heights, Ohio  
 Dowagiac  
 Fort Myers, Fla.  
 Chicago, Ill.



Brown Robert Hall	Fredonia, N. Y.
Grace Graham Hall	Ann Arbor
Helen Benedict Hall	Ann Arbor
Lawrence Hinman Hall, <i>m</i>	Buchanan
Leonard Charles Hall	Standish
Marjorie Lee Hall	Gary, Ind.
Richard Dreber Hall	Kalamazoo
†William DePuy Hall, <i>g</i>	Clinton
William Russell Hall	Dallas, Tex.
Hope Hermina Halladay	East Lansing
Charlotte Elizabeth Haller	Osceola
George Laborn Haller	Royal Oak
Mary Margaret Haller	Sault Ste. Marie
William Bernard Halley, Jr.	Louisville, Ky.
Gerald Jay Hallstead	Albion
Augustus Fossum Hallum	Ann Arbor
Robert Vose Halsey	Calumet
William Emerson Hamaker	Canton, Ohio
Weldon Thomas Hames	Rochester, N. Y.
George Edward Hamilton	Port Huron
William Robert Hamilton	Detroit
Florence Eleanor Hamlin	Durand
James Scallion Hamlin	Detroit
Max Cole Hamlin, <i>l</i>	Traverse City
Kuno Hammerberg	Carney
Harry Bernard Hammill, Jr.	Buffalo, N. Y.
Richard Clair Hamper	Aurora, Ill.
Urvan William Hampton	Cleveland, Ohio
Helen Frances Hancock	Yale, Okla.
George Wilson Hand	Chicago, Ill.
Willis Henry Handy	Benton Harbor
Carlton Mead Hanford	Buffalo, N. Y.
Kenneth Roy Hanks	Aurora, Ill.
John Henry Hanley	Youngstown, Ohio
Helen Jeanette Hanlin	Buchanan
Arthur James Hanna	New Castle, Pa.
Wave Irene Hanna	Flint
Richard James Hanrahan	Waterloo, N. Y.
David James Hanscom	St. Cloud, Minn.
George Crandell Hanselman	Ann Arbor
Margaret Elizabeth Hanselman	Ann Arbor
Engelhard Ernest Hansen	Manistee
Hjalmar Severin Hansen	Moline, Ill.
Julius Adolph Hanslovsky	Traverse City
Ervin David Hanson	Belding
Julius George Hanson	Rochester, Minn.
Watson Davidson Harbaugh	Piqua, Ohio
Alice Beatrice Harbridge	Ridgway, Pa.

Daisy Beatrice Harder	Pigeon
Isabel Beryl Harder	Wells
John Rozelle Harder	Wells
Lillian Anna Harding	Mancelona
Norris Montague Hardisty	Aberdeen, Md.
Elsie Beatrice Hardy	Detroit
Margaret Rae Hardy	Eaton Rapids
Beulah Belle Harger	Iron River
Raymond Harrison Harkrider, /	Brook, Ind.
John Frederick Harlan	Flint
Joseph Sanborn Harley	Detroit
Margaret Aileen Harley	Detroit
James Hoatson Harlow	Boulder, Colo.
Kathryne Inez Harma	Rudyard
Bertha Marjorie Harms	Scio, N. Y.
Beulah Margaret Harms	Scio, N. Y.
Frederick Richard Harper, m	Helena, Mont.
Leah Willabelle Harper	Detroit
Ralph D. Harper	Middleville
Ralph Verling Harr, m	Munith
Frank Arnold Harrigan	Grand Rapids
Doris Spencer Harrington	Cleveland, Ohio
George Haymand Harrington	Austin, Tex.
Emanuel J. Harris	Detroit
Gerald Harris	Harrisburg, Pa.
Virginia Elizabeth Harris	Cleveland, Ohio
Will Linn Harris	Nashville, Tenn.
Alice Lucille Harrison	Ann Arbor
Charlotte Camp Harrison	Pittsburgh, Pa.
Eileen Margaret Harrison	Ann Arbor
†Gerald Eugene Harrison, c	Detroit
John Julian Harrison	Napoleon, Ohio
†William Groce Harrison, g	Birmingham, Ala.
Nancy Babitt Harsh	D's Moines, Iowa
Lynden Ripley Hart	Watertown, N. Y.
Raymond Asa Hart	Saginaw
Ruby Marie Hart	Battle Creek
Russell Ellis Hart	Battle Creek
Salem Andrew Hart	Cleveland, Ohio
William D. Hart	Owosso
Mary Elizabeth Hartinger	Middleport, Ohio
Richard Devere Hartnell	Flint
Dorothy Eilene Hartshorn	Owosso
Maurice Hartwell	Saranac
Edward Nelson Hartwick	Ann Arbor
Bernard Hirshberg Hartzell	Youngstown, Ohio
Catharine Ellura Harvey	Benton Harbor
Ruth Annetta Harvey	Detroit

Winona Gertrude Harvey	Detroit
Mary Elizabeth Haskell	Ludington
William Clark Haskell	Greenville, S. C.
Susie Maude Haskin	Onaway
Warren Milton Haskin	Onaway
Mary Elizabeth Haskins	Anchorage, Ky.
Elizabeth Ethel Hastings	Ann Arbor
Havilah E. Hastings, Jr.	Olathe, Kans.
Margaret Frances Hastings	Ann Arbor
Elmer Hatashita	Ann Arbor
Harold Whitman Hathaway	Paw Paw
William Homer Hattendorf	Western Springs, Ill.
May Lillian Hause	Ann Arbor
Vera Leone Hauxwell	Pontiac
Richard Julian Haven	Muskegon
Vernon Carleton Havens	Detroit
Helen H. Hawken	Detroit
Kenneth MacDonald Hawks	West Palm Beach, Fla.
Russell Arthur Hawley	Lackawanna, N. Y.
Eleanora Elizabeth Hawn	Youngstown, Ohio
John Woods Hay, Jr.	Rock Springs, Wyo.
Lewis Carl Hayden	Newfane, N. Y.
Perry Mead Hayden	Tecumseh
Osborne Haydon	Las Vegas, N. Mex.
Elizabeth Johnston Hayes	Detroit
Lylas Estelle Hayes	Lakewood, Ohio
William Abbott Hayes	Springfield, Mass.
Morris Murray Hayman	Paterson, N. J.
Harry Russell Haynie	Chicago, Ill.
Edith Mary Hays	Michigan City, Ind.
James Hampton Hays	Enid, Okla.
Margaret Elizabeth Hays	Michigan City, Ind.
Juanita Jeanetta Heady	River Forest, Ill.
Bruce John Healy	Fort Dodge, Iowa
Merril John Heaphy	Cheboygan
†George Willard Heard, c	Ontonagon
Forrest A. Heath	Detroit
†Sadybeth Heath, cd	Detroit
Peter William Heavey	Detroit
Helen Margaret Hebauf	Lansing
Thomas Hedetniemi	Beacon
Erwin Theodore Hedrich	Grand Rapids
Donald William Hedrick	Toledo, Ohio
Josephine Ellen Heering	Grand Rapids
Ethel Carolyn Heibein	Ann Arbor
Esther Elizabeth Heideman	Calumet
Karl Peter Heideman	Calumet
Laurence John Heidenreich	Marshall

William Stevens Heigho	Detroit
Marion Kerr Heilbrunn	Ann Arbor
John Heilig	Benton Harbor
Charles Herman Hein	Aspinwall, Pa.
Wilbur August Heinz	Dayton, Ohio
Jewel Clarice Heiser	Cleveland, Ohio
Donald Lawrence Helkie	Three Oaks
Erma Joan Hellmuth	Bay City
Marjorie Stanton Helm	Cadillac
Guy Anderson Hemenger	Algonac
Dorothy Deane Henderson	Flint
†Olive Grace Henderson, ed	Detroit
Robert Bartron Henderson	Ann Arbor
Anne Mildred Hendrickson	Butte, Mont.
Dorothea Reid Hendrickson	Detroit
William David Henly	Cincinnati, Ohio
Lucile Eleanor Henne	Ann Arbor
Doris Elizabeth Henoch	LaPorte, Ind.
Bernice Ethelyn Henry	Hastings
Gerald McCarty Henry	Lowell
Leslie Henry	Toledo, Ohio
Thomas Patrick Henry, Jr.	Detroit
Helen Everts Hensley	Milan
George Hill Henwood	Detroit
Joseph Henwood	Detroit
Franklin Dewey Hepburn	Detroit
Joseph Clifford Herafer	Blackpool, England
Daniel Henry Herbert	Washington, D. C.
†John Marvin Herman, I	Boone, Iowa
Griffith Alexander Herold	Bradford, Pa.
Archibald Vaughan Herrick	Bay City
Meriam Clay Herrick	Cleveland Heights, Ohio
Josephine Augusta Koenen Herrmann	Mount Vernon, N. Y.
Edward Israel Herrold	Columbia City, Ind.
Grace Elizabeth Hertel	Memphis, Tenn.
Florence Margaret Hertler	Ann Arbor
Saul Hertz	Cleveland, Ohio
William Andrew Hesse	Saginaw
Reta Johanna Hessler	Buffalo, N. Y.
Leonard Altgeld Hester	Johnstown, N. Y.
George Welborn Heston	Evansville, Ind.
Jessie Thorp Hetherington	Indianapolis, Ind.
Herbert Nelson Heuman	Jackson
Edward Sanford Hewitt	Detroit
William McFall Heyser	Evanston, Ill.
Gail York Heystek	Detroit
Winona Alexandria Hibbard	Flint
Edward Emanuel Hibshman	Cleveland, Ohio

Alice Long Hicks	Cuervo, N. Mex.
Clark Barmore Hicks	Millbrook, N. Y.
Julia Kelley Hicks	Cleveland, Ohio
Fred Goodhue Hicks	Dearborn
Grant Taber Hicks	Tacoma, Wash.
Robert Alan Hicks, <i>m</i>	Benton Harbor
Samuel Irving Hicks	Millbrook, N. Y.
William Campbell Hicks II	Ann Arbor
Leroy Edward Hieber	Cedar Falls, Iowa
Charles Gordon Higby	Prattsburg, N. Y.
Edward James Higgins	Detroit
Frances Susanna Higgins	Ann Arbor
Kenneth Frank Higgins	Casa City
William Henry Highstone	Grand Rapids
Alice Creed Higley	Youngstown, Ohio
Charles Spencer Higley	Cleveland, Ohio
Toyoji Higuchi	Los Angeles, Calif.
Paul Raymond Hildebrand	Owosso
Waldo Oscar Hildebrand	Owosso
Mildred Ashton Hileman	Mount Pleasant
Bereniece Ann Hill	Aurora, Ill.
Carlton Gus Hill	Port Huron
Clifton Daley Hill	Alpena
Edwin John Hill	Colon
Frederick Ephriam Hill, Jr.	Hastings
George Hampton Hill	Sharon, Pa.
George Miller Hill	Jackson
Myron George Hill	Cleveland, Ohio
Percy Barre Hill	Reading
Patti Garnet Hiller	Detroit
Marion Winchell Hillman	South Bend, Ind.
Blanche Lucille Hills	Morris, Ill.
Ford Archer Hinchman, Jr.	Detroit
Emily Lucy Hine	Grand Rapids
Frances Marjory Hinkley	Benton Harbor
Helen Lorraine Hinterman	Ann Arbor
Theodore Joseph Hinze	Ann Arbor
Oscar William Hirschfield	Cincinnati, Ohio
Joseph Rothschild Hirschman	St. Paul, Minn.
Julian Hirschman	St. Paul, Minn.
Ruth Carsters Hirschman	Detroit
Paul Stanley Hirt	Richmond
Charles Leonard Hirwas, <i>m</i>	Ishpeming
Ralph Vincent Hitchcock	Sodus, N. Y.
Dumont Francis Hixson	Durand
Hortense Hoad	Ann Arbor
William Marvin Hoad	Ann Arbor
Kenneth Hoag	Ann Arbor

James Trenbath Hoar  
 Lenore Edna Hobart  
 Winifred Sarah Western Hobbs  
 Thelma Collinson Hobson  
 Helen Louise Hochrein  
 Milton Timothy Hodge  
 Charles Edwin Hodgman  
 Edward David Hoedemaker  
 Ruth McMurray Hoefner  
 Edward Mathew Hoey  
 Harry Donald Hoey  
 Byron Karl Hoffman  
 Carl Edward Hoffman  
 George Zenas Hoffman  
 Howard Harry Hoffman  
 Leo Wason Hoffman  
 Lewis Wallace Hoffman  
 Theodore Edward Hoffman  
 Fadelma Hoffstetter  
 Egbert Max Hofmann  
 Berenice Ida Hoheisel  
 Zelma E. Hokin  
 George Ray Holbrook  
 Mary Elizabeth Holden  
 Lucille Marjory Holdsworth  
 Francis Joseph Holland  
 †Norton Eugene Holland, *e*  
 Thomas Albert Hollands  
 Daisy Jenease Hollies  
 Harriett Catherine Hollon  
 William Lawson Holloway, Jr., *l*  
 Alan Wendell Holmes  
 Edward Franklin Holmes  
 Elizabeth Patterson Holmes  
 George Henry Holmes, Jr.  
 John Willard Holmes  
 Myrtle Field Holmes  
 Robert Furrow Holmes  
 Richard Watkins Holt  
 Tunie Adelaide Holt  
 Eugene Richard Holtz  
 Esther Reva Holtzman  
 Ruth Evelyn Holznagle  
 Peter Hondorp  
 Richard John Honeychurch  
 Jack Honigman, *l*  
 Orville Blackman Hoon  
 Albert Webster Hooper

Lake Linden  
 Middleport, Ohio  
 Ann Arbor  
 Cleveland, Ohio  
 Ann Arbor  
 Jackson  
 Coldwater  
 Charlotte  
 Franklin, Pa.  
 Dexter  
 Youngstown, Ohio  
 Lorain, Ohio  
 Allegan  
 Dubuque, Iowa  
 Muncie, Ind.  
 Allegan  
 Richmond Hill, N. Y.  
 Ann Arbor  
 Ann Arbor  
 Detroit  
 Ann Arbor  
 Detroit  
 Ashland, Ky.  
 Grand Rapids  
 Detroit  
 Grand Rapids  
 Detroit  
 Plainwell  
 Saginaw  
 Marshall  
 He'ena, Mont.  
 Fort Myers, Fla.  
 Detroit  
 Alma  
 Gowanda, N. Y.  
 Alma  
 Ann Arbor  
 Piqua, Ohio  
 Detroit  
 Shelby, Ohio  
 Detroit  
 Detroit  
 Birmingham  
 Grand Rapids  
 Battle Creek  
 Detroit  
 Dixon, Ill.  
 Ann Arbor

Royce Burton Hooper	Detroit
William Albert Hooper	Kenora, Ont.
George John ten-Hoor	Holland
Judith Hootkins	Grand Rapids
David Raymond Hoover	Ann Arbor
James Frederic Hopkins	Ypsilanti
Ola Margaret Hopkins	Caro
Anna Marjorie Hoppin	Detroit
Frances Anita Horine	Detroit
Frederick Albert Horn	Windsor, Ont.
Royena Mary Hornbeck	Kalamazoo
Theodore R. Hornberger	Ann Arbor
Henry Fredrick Horner	Ypsilanti
Robert Roy Horner	Grand Rapids
Robert Miller Hornung	Gibsonburg, Ohio
Wendell Carlyle Horton	Montgomery
Fred Smith Hosking	Laurium
Dean Lenard Hosmer	Ann Arbor
Virginia Lee Hosmer	Indianapolis, Ind.
Clarence Carl Hostrup	Clinton, Iowa
Robert Sherman Hotchkiss	Jamestown, N. Y.
Cass Sheffield Hough	Plymouth
Marjorie Mae Houghton	Bay City
Della Eveline Houland	Escanaba
Alberta Isabelle Houle	Bisbee, Ariz.
Howard Daniel House	Detroit
Manning Allen Houseworth	Elkhart, Ind.
Charles Stedman Hover	Denver, Colo.
Lawrence Jerome Hovey	Presho, N. Y.
Caroline Elizabeth Howard	Youngstown, Ohio
Charlotte Howard	Jackson
Harvey Howard, Jr.	Albion, Nebr.
Helen Louise Howard	Highland Park
John Austin Howard	Ann Arbor
Katherine Jeannette Howard	Kalamazoo
Richard Theodore Howard	Chicago, Ill.
William John Howard	Kalamazoo
Edgar C. Howbert	Colorado Springs, Colo.
Donald Hathaway Howe	Highland Park
Ward Allan Howe	Franklinville, N. Y.
David Austin Howell	Ann Arbor
Joseph Sumner Howell	Adrian
Martha Virginia Howell	Altoona, Pa.
Ruth Alden Howell	Washington, D. C.
Marion Howland	Highland Park
Harrison Pendry Howes	Battle Creek
Henrietta Helen Howser	Ann Arbor
Herbert Williams Hoyt	Sharon, Pa.

Louella Ann Hoyt	Ann Arbor
Thora Maude Hoyt	Battle Creek
Margaret LaVerne Hozack	Detroit.
Louis Hromadko	Detroit
Joseph Tsufang Hua	Tientsin, China
Eugene Addison Hubbard	Merrill
James Alfred Hubbard	Pontiac
Katharine Electa Hubbard	Mount Clemens
Leon Howard Hubbard	Detroit
Seth Andrew Francis Hubbard, /	Riverhead, N. Y.
William DeHart Hubbard	Detroit
Vance Richmond Hubbell	Richmond
†Carl Parker Huber, m, g	Ann Arbor
John Franklin Huber	Ann Arbor
Ralph S. Hudson	Ann Arbor
Wilton George Huebler	Ann Arbor
Margaret Willamene Huebner	Detroit
John Fred Hueni	Bremen, Ind.
Mary Augusta Huesman	Ann Arbor
Daniel Allison Huff	Detroit
Frances Marie Huff	Gobles
Sidney Wright Huff, Jr.,	Detroit
Gwyn McCall Hughes	Yarmouth, Me.
Roland Douglas Hughes	Alpena
Rowland Lyman Hughey	Waterloo, N. Y.
Loa Chan Hui	Batavia, Java
Elizabeth Griffin Hulbert	Detroit
Emily Margaret Hulbert	Detroit
Henry Charles Hulett	Marshall
Blanche Hull	St. Clair
George Lafayette Hull	Toledo, Ohio
John Warren Hull	Lansing
Raymond Maxon Hull	St. John
Ralph Justin Hullinger	Royal Oak
Alice Elaine Hulscher	New Rochelle, N. Y.
Sarah Conley Oliver Hulswit	Ann Arbor
Edwin Alexander Hultin	Ann Arbor
Sarah Hume	Muskegon.
Robert Johnstone Hummer	Chicago, Ill.
Charles Mark Humphrey, Jr.	Ironwood
Elizabeth Lee Humphrey	Rochester, Mass.
Agnes Louise Humphreys	Van Wert, Ohio
Elizabeth Humphreys	Van Wert, Ohio
Herbert Lewis Hunt	St. Joseph
Edward Andrew Hunter	Detroit
Keith Maxwell Hunter	Vermontville
Edgar Hunt Hunting	Grand Rapids
Albert Lord Huntington	Ann Arbor



Mary Bliss Hubbell Huntington	Ann Arbor
Selden Thomas Huntling	Cresco, Iowa
Lauren George Huntzinger	Fremont, Ohio
†Chi Fang Huo, <i>g</i>	Shanghai, China
Delmar Howard Hurd	Flint
Alexander Hurh	Kim San, Korea
Grace Jean Hurkett	Harbor Beach
Frank McColl Hursley, <i>l</i>	Detroit
Mary Hermine Husband	Sault Ste. Marie
Bernard Brough Huss	Genoa, Ohio
John Henry Husselman	Grand Rapids
John Christian Hustad	Iron Mountain
William Murrell Huston	Marshall, Mo.
George Keith Hutchings	Helena, Mont.
Helen Elizabeth Hutchins	Pontiac
Janice Hubbard Hutchins	Pontiac
Maxwell Weston Hutchinson	Middlebury, Ind.
John Huntington Hutton, <i>m</i>	Detroit
Merl Noyer Hutton	Ypsilanti
Raymond Frederick Hutzell	Ann Arbor
Stanhope Pier Huyck, <i>m</i>	Clio
Edward Clarrington Hyde	Midland
Laura Elizabeth Hyde	Saugerties, N. Y.
LaVern Francis Hyde	North Tonawanda, N. Y.
Lawrence Charles Hyman	Kansas City, Mo.
Olive Hyman	Saginaw
Gordon Mackenzie Ibbotson	Chicago, Ill.
Frances Ellen Ide	Creston, Iowa
James Ferry Idema	Ann Arbor
Dunning Idle, Jr.	Ypsilanti
Louise Igel	Pittsburgh, Pa.
Carlyle Philip Imerman, <i>m</i>	Detroit
Allison Wilber Ind	Ann Arbor
Orville Louis Ingersoll	Grand Rapids
Raymond Charles Ioas	Western Springs, Ill.
Mary Adelaide Irwin	Pittsburgh, Pa.
Edward Kenneth Isbey	Detroit
William Richard Isola	Calumet
Stanley Streeter Iverson	Chicago, Ill.
John Reno Ives	Ann Arbor
Mary Virginia Ives	Ann Arbor
John Baptist Izzo	Iron Mountain
Peter William Jablonowski	Terryville, Conn.
David Henry Jackson	Greeley, Colo.
Francis Eugene Jackson	Monroe
Harry Gilbert Jackson	Detroit
Joseph James Jackson	Toledo, Ohio
Paul Francis Jackson	South Bend, Ind.

Richard Adolphus Jackson  
 Margaret Isabel Jacob  
 Charlotte Mary Jacobs  
 Edith Marian Jacobs  
 Helen Ruth Jacobs  
 Harold William Jacox  
 Suren Joseph Jaffargian  
 Donald West Jaicks  
 Ethel Margaret James  
 William Rees James  
 Mary Elizabeth Jameson  
 Edward Franklin Jankoski  
 Anton John Jankoviak  
 †Fred Thomas Jarrett, /  
 Julio Cesare Jauregui  
 Thomas George Javalas  
 John Allyn Jay  
 Erwin John Jedele  
 William Virgil Jeffires  
 Dorothy Jeffrey  
 Alfred Henry Jekel  
 Karl August Jekel  
 Oscar Henry Jekel  
 Martina McKenzie Jenkins  
 Ida Valentine Jenks  
 Margaret Lee Jenks  
 Rhea Frances Jenks  
 Dorothy Jenners  
 Helen Emerson Jennings  
 Rex La Vere Jennings  
 Ruth Formean Jennings  
 Thyra Jennings  
 William Clyde Jennings  
 Edna Sophie Jensen  
 Pauline Joan Jensen  
 Mary Ruth Jerome  
 Paul Frederick Jerome  
 Lawrence Tremont Jessup  
 Henry Kimball Jewell  
 Ingrid Malmloff Jewell  
 Ralph Berryman Joachim  
 Adaline Emily Johnesse  
 Alva Hazlewood Johnson  
 Anita Loretta Johnson  
 Blanche Berenice Johnson  
 Chester William Johnson  
 Corinne Cecelia Johnson  
 Donald Edson Johnson

St. Louis, Mo.  
 Indiana, Pa.  
 Ann Arbor  
 Oklahoma City, Okla.  
 Oklahoma City, Okla.  
 Flint  
 Detroit  
 River Forest, Ill.  
 Ann Arbor  
 Cleveland, Ohio  
 Cadillac  
 Lake City  
 Bessemer  
 Farrell, Pa.  
 La Paz, Bolivia  
 Newark, N. J.  
 Ann Arbor  
 Ann Arbor  
 Greenville, Ky.  
 New York, N. Y.  
 Kirkwood, Mo.  
 Kirkwood, Mo.  
 Kirkwood, Mo.  
 North Lima, Ohio  
 Detroit  
 St. Clair  
 Traverse City  
 South Haven  
 Toledo, Ohio  
 Lansing  
 Lansing  
 Hartford  
 Menlo, Ga.  
 Grant  
 Muskegon  
 St. Clair  
 Detroit  
 Rockford  
 Danville, Ill.  
 Ann Arbor  
 St. Clair  
 Boise, Idaho  
 Grand Rapids  
 Erie, Kans.  
 Detroit  
 Minneapolis, Minn.  
 Detroit  
 Flint

Doris Marie Johnson	New Era
Edward Francis Johnson	Wahoo, Nebr.
Ellen Ida Johnson	South Bend, Ind.
Esther Elvira Johnson	Ironwood
Evelyn Ann Johnson	Ontonagon
Evelyn Cleone Johnson	Capron, Ill.
† Evlyne Ida Johnson, <i>ed</i>	Reed City
George Colwell Johnson	Detroit
Helen Louise Johnson	Detroit
Howard Jason Johnson	Niagara Falls, N. Y.
Kathryn McLean Johnson	South Haven
Lester F. Johnson	Greenville
Lotus Veronica Johnson	Flint
Margaret Gretchen Johnson	Comstock Park
Nels Gustaf Johnson	Ludington
Norman Burrows Johnson	Louisville, Ky.
Orville Whittaker Johnson	Sarnia, Ont.
Oscar Adolph Johnson	Des Moines, Iowa
Philip Richard Johnson	Mount Pleasant
Phyllis Katherine Johnson	Ann Arbor
Robert Thomas Johnson	Fort Wayne, Ind.
Roscoe Conklin Johnson	Oswego, Kans.
Roy Bernard Johnson	Ludington
Roy William Johnson	La Porte, Ind.
Stuart Curtis Johnson	Washington, D. C.
Thomas Harlan Johnson	Ann Arbor
David William Johnston	Taylorville, Ill.
Fanny Louisa Johnston	Detroit
Florence Carolyn Johnston	Detroit
Helen Hazel Johnston	Farnham, N. Y.
William Harry Johnston	Flint
Alice Harriet Johnstone	Chicago, Ill.
Catherine Mary Jones	Detroit
Catherine Pitt Jones	Walkerville, Ont.
Charles Cummings Jones	Defiance, Ohio
Dorothy Elizabeth Jones	Detroit
George William Jones III	Bellevue, Pa.
Ida Eleanor Jones	Detroit
John Eddie Jones, <i>m</i>	Detroit
Lincoln Darwin Jones	Oak Park
Lowell Frederick Jones	Belding
Margaret Evelyn Jones	Grand Rapids
Marion Rex Jones	Troy, Pa.
Paul Carlton Jones	Toledo, Ohio
Paul Haven Jones	Clio
Robert Carroll Jones	Troy, Pa.
Robert Edgar Jones	Columbus Grove, Ohio
Sam Milton Jones	Toledo, Ohio

Stephen Everington Jones  
 Thomas Duane Jones  
 Merritt de Jong  
 Selma Edith de Jonge  
 John Wilbur Jontz  
 Joe Joseph, I  
 Pauline Betty Jostich  
 Rudolph Jostich, Jr.  
 Gerald Thomas Joyce  
 Maurice Warren Judd  
 John Engstrom Judson  
 Chester Charles Jung  
 Vera Caroline Kaden  
 Edna Elizabeth Kadow  
 Helen Marr Kagay  
 Harold Edward Kahl  
 Myron S. Kahler  
 Ruth Kahn  
 Samuel James Kailes  
 Harry Louis Kaiser  
 Dorothy Elizabeth Kalmbach  
 Dorothy Knoepp Kalmbach  
 Violet Christine Kameron  
 Dorothy Kamin  
 Harry William Kamin  
 Frederick Carl Kampinga  
 Carl Emil Kane  
 Helen Mae Kane  
 Milton Clarence Kane  
 Edith Clara Kaplan  
 Samuel Herman Kaplan  
 Manmatha Nath Kar  
 Aaron Louis Karabelnick  
 Emmanuel Nick Karay  
 Sidney Joseph Karbel  
 Elsie Marjorie Karle  
 Maurice Frankle Karp  
 Robert Whitcomb Karpinski  
 David Kass  
 Solomon Katz  
 Theodore Roosevelt Katz  
 Vera Katz  
 Harry Katzman  
 Garrett Ervin Kauffman  
 Howard Eisenstaedt Kaufman  
 Samuel Kaufman  
 Karl Eugene Kaufmann  
 Irene June Kauska

Duluth, Minn.  
 Charleroi, Pa.  
 Evansville, Ind.  
 Grand Rapids  
 Grand Rapids  
 Flint  
 Detroit  
 Detroit  
 Detroit  
 Rising City, Nebr.  
 Ann Arbor  
 Milwaukee, Wis.  
 Boyne City  
 Toledo, Ohio  
 Ann Arbor  
 Detroit  
 Frankfort, N. Y.  
 Detroit  
 Elyria, Ohio  
 Decatur, Ill.  
 South Lyon  
 Pittsburgh, Pa.  
 Detroit  
 Detroit  
 Pittsburgh, Pa.  
 Muskegon  
 Detroit  
 Ann Arbor  
 Cleveland, Ohio  
 Cleveland, Ohio  
 Flint  
 Calcutta, India  
 Detroit  
 Detroit  
 Detroit  
 Detroit  
 Clifton, N. J.  
 Ann Arbor  
 Rochester, N. Y.  
 Bayonne, N. J.  
 Marshall  
 Fort Wayne, Ind.  
 Clearfield, Pa.  
 Dowagiac  
 Chicago, Ill.  
 Lebanon, Ohio  
 Saginaw  
 Detroit

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Yo Kawamura	Sendai, Japan
Louis Henry Kean	Redford
Mark Alexander Kearney	Detroit
Walter Thomas Keating	Grand Rapids
William Henry Keating	Grand Rapids
Alethia Elizabeth Keatley	Ann Arbor
John William Keatley	Ann Arbor
Gertrude Mabel Keedle	Ann Arbor
Margaret Ann Keegan	Fort Wayne, Ind.
Robert Yarnelle Keegan	Fort Wayne, Ind.
Matthew Bliss Keeler	Lansing
George Sidney Keidanz	Now York, N. Y.
Margaret Frances Keil	St. Joseph
†Albert Collier Keith, <i>g</i>	Martinez, Ga.
Catherine Kelder	South Haven
Kenneth Chambers Kellar	Lead, S. Dak.
Kathleen Marie Kelleher	Ann Arbor
Dwight Foltz Keller	Toledo, Ohio
Leonard Anton Keller	Detroit
Mae Annie Keller	Hastings
Alfred Eugene Kelley	Waterloo, Ind.
Richard Thomas Kelliher	Chicago, Ill.
John Webb Kellogg	Detroit
Carlos Dexter Kelly	Minneapolis, Minn.
Dorothy Irma Kelly	Cleveland, Ohio
Kenneth Francis Kelly	Ann Arbor
Easton Trowbridge Kelsey	Ann Arbor
Cordelle Kemper	New Orleans, La.
Vera Ernestine Kenaga	Rose Center
Chauncey Alcott Kendall	Hot Springs, Ark.
Lilias Julia Kendall	Detroit
George Kenigson	Jersey City, N. J.
Cecil John Kennedy	Essex, Ont.
Clyde Butler Kennedy	Detroit
Elizabeth Stuart Kennedy	Royal Oak
Howard Edgar Kennedy	Detroit
James Edward Kennedy	Muncie, Ind.
John Lewis Kenower	Huntington, Ind.
Charles Sledge Kent	Portland, Me.
Mary Kent-Miller	Ann Arbor
Arvo Henry Kentta	Eveleth, Minn.
Philip Kerker	Brooklyn, N. Y.
Erial Thelma Kern	Muscatine, Iowa
Frank Parr Kerr	Mount Clemens
Howard James Kerr, <i>m</i>	Newport, Ohio
Kenneth Rowan Kerr	Wilmette, Ill.
Marjorie Grace Kerr	Sarnia, Ont.
Virginia Erickson Kersey	Muncie, Ind.

Clarence Richard Kersten	Marine City
William Theodore Kessel	Saginaw
Mary Catherine Kessell	Pontiac
Lela Grace Kessinger	Detroit
Paul Robert Kevin	La Crosse, Wis.
Helen Millicent Keyser	Pontiac
Maurice Lester Keyser	Milton, Pa.
†Vaughn Elizabeth Kezartee, <i>e</i>	Battle Creek
Arthur Leo Kidd	Duquesne, Pa.
Violet Helen Kidder	Detroit
Milton Lyman Kiebler	Manchester
Dorothy Roslyn Kiefer	Dayton, Ohio
Bertha Mary Kiel	Grand Haven
• Marion Margaret Kiely	Plymouth
Edward Campbell Kilduff	Malta, Mont.
Robert Frederick Kile	Dallas, Tex.
Mary Leone Kiley	Grand Rapids
Elizabeth Kilpatrick	Detroit
Lucia Lee Kilpatrick	Detroit
Albert Jonston Kimball	Pontiac
Russell Cornelius Kimball, <i>m</i>	Ann Arbor
Violet Kimball	Reed City
Harry Hubert Kimber	Indianapolis, Ind.
Fumi Kinai	Kyoto, Japan
Thomas Gabriel Kindel	Grand Rapids
Bertram Stearns King	Blissfield
Frances Lorraine King	Michiganamme
Helen Lorraine King	Cleveland Heights, Ohio
Mabel Jones King	Ann Arbor
Marvin Reuben King	Lansing
Robert Warner King	St. Joseph
Sarah Dorothy King	Taunton, Mass.
Lucy Eta Kingsley	Battle Creek
Sarah Louise Kingsley	Battle Creek
Zelda Martha Kingsley	Three Rivers
Parke Hornby Kinetz	Lapeer
William Vernon Kinetz	Lapeer
†Harold Thomas Kinley, <i>ed</i>	Flint
Antoinette Elizabeth Kinsella	Detroit
Harry George Kipke	Lansing
Adelbert Martin Kipp	South Haven
Kenneth Edgar Kipp	Bronson
Johnson Kirby	Sarnia, Ont.
Sarah Jennie Kircher	Ann Arbor
Mary Jane Kirk	Ypsilanti
Lemuel Brown Kirkpatrick	Little Rock, Ark.
Guy Waldo Kirsch	Sturgis
Robert Everett Kirschman	Battle Creek

Elias Arden Kirschner	Peebles, Ohio
Miriam Frances Kirschner	Peebles, Ohio
Frances Mary Kirtland	Jackson
Edna May Kistler	Bellevue, Ohio
Horace Mummary Kitson	Ann Arbor
Richard Carlyle Kittredge	Royal Oak
Anna Mary Klager	Ann Arbor
Frank Herman Klann	Bay City
†Andrew William Klein, c	Detroit
Arthur William Klein	Chicago, Ill.
Kermit Kern Klein	Ann Arbor
Nathan Klein	Wilkes-Barre, Pa.
Rita Ruetta Klein	Cleveland, Ohio
Walter Alfred Kleinert	Detroit
Earl Edwin Kleinschmidt	Ann Arbor
John Walter Klimek	Detroit
Philip Kling	Grosse Pointe
Mildred Klinger	Ann Arbor
James Floyd Klock	Daytona, Fla.
Elsie Klooz	Youngstown, Ohio
Kenneth Charles Klute	Three Oaks
Dorothy Lillian Knapp	Bay City
Helena Marguerite Knapp	Battle Creek
Sirvillian Stanley Knapp	Lansing
Homer Holcomb Knight	Charlotte
June Alexander Knisley	Battle Creek
Mary Grace Knoblock	Detroit
William Porter Knode	Juniata, Pa.
Harold Elton Knowles	Jackson
William Calvin Knox	Cadillac
Calvin Stremlan Koch	Arlington, N. J.
Frederick Wallace Koch	Redford
Otto Carl Koch	Grand Haven
Katharine Kocher	Decatur, Ind.
Adolph Joseph Koenig	Ann Arbor
Henry Buckley Koenig	Chicago, Ill.
Otto Gustave Koenig, Jr.	St. Louis, Mo.
Albert Frazier Koepcke	Detroit
Osmund Daniel Kohler	Chicago, Ill.
Harry Kok	Grand Rapids
Marian Kolb	Battle Creek
Katherine Agnes Konwinski	Iron River
Gertrude Ida Kopf	Ann Arbor
Barney Koplin	South Orange, N. J.
Marcelle Maybelle Korach	Cleveland Heights, Ohio
Bartley Louis Korenkiewicz	Menominee
Yoyo Alfred Koskinen	Cleveland, Ohio

Albert William Koster	Kingston, N. Y.
Frederick James Kountz	Toledo, Ohio
Wilbor George Kraft	Erie, Pa.
Louis William Kramer	Cleveland, Ohio
Hazel Juliaette Krapf	Ann Arbor
Philip Ned Krasne	Council Bluffs, Iowa
Max Aaron Krasnick	Holly
Ardath Gertrude Krattger	Grand Rapids
Earl Bernard Kratz	Detroit
Mentor Adolph Kraus	Fort Wayne, Ind.
Carl Erwin Krebs	Gowanda, N. Y.
Arthur Carl Kreinheder	Detroit
Bertha Eleanora Kreitz	Monroe
Kurt J. Kremlicka	Detroit
Norman Rudolph Kretzschmar, m	Detroit
Earl Donald Krickbaum	Cleveland Heights, Ohio
Leslie Walton Krieger	Chicago, Ill.
Ruth E. Krieger	Pittsburgh, Pa.
William Edward Krieger	Cleveland, Ohio
Joseph Kruger	Newark, N. J.
Marion Elizabeth Kubik	Saginaw
Joseph Paul Kucza	Pine Island, N. Y.
Merle Scovel Kuder	Menominee
Waldo Gross Kuehule	Ann Arbor
Franklin Carl Kuenzel	Grand Rapids
Mildred Louise Kuenzel	Grand Rapids
Nora Marie Ostgaard Kuhn	Gregory
Nels Kuivinen	Wakefield
Reva Kulakofsky	Omaha, Nebr.
P'aul Joseph Kullman	Chicago, Ill.
Yoshiyasu Kumazawa	Yokohama, Japan
Lewis Frederick Kummer	Butler, Pa.
Walter Kunow	Detroit
Neel Kunze	Ann Arbor
Harry Adolph Kurland	New York, N. Y.
Frank Kamekichi Kuroishi	Saitama, Japan
Charles Theodore Kurtz, Jr.	Clearfield, Pa.
Robert Myers Kurtz	Clearfield, Pa.
Kimber Cleaver Kuster	Ann Arbor
Georgia Virginia Kutak	Muskegon
Melvin Joseph Kuttbauer	Detroit
Francis Stanislaus Kwak	Depew, N. Y.
Jean Lang Kyer	Ann Arbor
Blanche Violet Kynast	Saginaw
Aristomenes Panagiotis Kyriakopoulos	Ann Arbor
Johannes Albert Laansma	Grand Rapids
Alphra Charis Ladd	Detroit



Carleton Angell Ladd	Ann Arbor
Wade Porter Ladd	Toledo, Ohio
Emile Bouya Lade-Veze	Spokane, Wash.
Helen Marsha Laidman	Cleveland, Ohio
Clara Madeline Lain	Bolivar, N. Y.
Donald Reid Laing	Iron Mountain
Ruth Isabell Laitner	Detroit
Florence Beatrice Lake	Grosse Ile
Lillian Katherine Lake	Grosse Ile
Lucius Joseph Lally	Ann Arbor
Mary Felicie Lally	Ann Arbor
Frank Bernard Lambert, Jr.	Chicago, Ill.
Howard Carleton Lamont	Detroit
John Gordon Lamoree	New Castle, Pa.
Thomas Gordon Lamoree	New Castle, Pa.
Elmore Calvin Lampe	Louisville, Ky.
Axel John Lampinen	Onnola
Christa Emmiline Landgraf	Flora, Ill.
Louis Lee Landman, /	Grand Rapids
Dorothy Morris Lane	Pittsburgh, Pa.
James Cummins Lane	Toledo, Ohio
Katherine Mae Lane	Ann Arbor
Lucian Lane, /	Kansas City, Mo.
Josephine Lang	Fort Worth, Tex.
Nellie Esther Lang	Le Mars, Iowa
Reginald Defoe Lang	Marine City
Robert Jackson Lang	Fort Wayne, Ind.
Elva Marie Langdon	Flint
Hans Douglas Lange	Cleveland, Ohio
Richard Forrest Langell	Ashtabula, Ohio
William Christian Langenau	Cleveland, Ohio
Elmer Emil Langguth	Cleveland, Ohio
†Thomas Huxley Langlois, g	Port Huron
Claude Conrad Lanstrum	Helena, Mont.
Ethelwyn Elizabeth Lapham	Northville
Evelyn Marie Lapham	Detroit
Pearl V. Lapish	Sault Ste. Marie
Francis Marion La Plantz	Genoa, Ohio
Lester Niel Lapp	Clarence, N. Y.
Samuel Ervin Lapp	Buffalo, N. Y.
John William Lapurko	Trenton, N. J.
Helen Martha Laraway	Jackson
Alfred Goodwin Larke	Niagara Falls, N. Y.
Berle Everett Larned	Battle Creek
Florence Elaine Larned	Ann Arbor
James Hull LaRowe	Maywood, Ill.
Philip Eugene LaRowe	Maywood, Ill.

Albert Edmund Larrabee	Williamston
Harold Daniel Larsen	Warren, Pa.
Emil Perry Larson	Chicago, Ill.
Lucile Marie Larson	Manistee
Harry Stephan Laskey	Cleveland, Ohio
Harold Aaron Lasser	Newark, N. J.
Mary Lillian Lathers	Inkster
Henry Townsend Lathrop	Detroit
Harold Kenneth Latta	Richmond, Ind.
Clara Butler Lau	Detroit
Elmo Donald Laurence	Detroit
Richard Lee Laurence	Detroit
Elmer Francis Lautner	Traverse City
Dorothy Diana Lauver	Detroit
Elizabeth Rose Lauver	Detroit
Albert David Law	Cass City
Marian Louise Lawless	Ann Arbor
Dorothy Lawrence	Caspian
Harry Charles Lawrence	Brook, Ind.
Joseph Don Lawrence	Ypsilanti
Rosemary Lawrence	Valparaiso, Ind.
Belford Vance Lawson, Jr.	Detroit
Esther Lawson	Cheboygan
Margaret Alexander Lawson	Detroit
Robert Lawson	Grand Ledge
Shirley Jane Lawton	Ridgetown, Ont.
Gladys Rose Lax	Olean, N. Y.
Marian Eleanor Layman	Mount Morris
Harriett Marvel Leatherman	Ann Arbor
Leighton Maurel Leatherman	Ann Arbor
Maryrose LeBeau	Ann Arbor
Don Mitchell LeDuc	Jackson
Charles Todd Lee	Ann Arbor
Herbert Carlross Lee	Saginaw
Hsiang Chuan Lee	Tientsin, China
John Parker Lee	Ann Arbor
Rosabel Vail Lee	Flint
Walter Clinton Lee	Detroit
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Paul Francis Leedy	Battle Creek
Lilian Leeson	Ann Arbor
James Paton Leete	North Branch
Fred Otto Leever	Ann Arbor
Fay Atkinson Le Fevre	Cleveland, Ohio
William Dorr Legg	Ann Arbor
Gladys Virginia Lehman	Detroit
Paige Eugene Lehman	Minneapolis, Minn.

Marion Ethel Lehr	Centreville
George Edward Lehtinen	Peterborough, N. H.
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Arthur Jules Levy	Detroit
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Edith Henriette Levy	Iron Mountain
Harriet Brown Levy	Detroit
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Marshall Herman Levy	Fort Wayne, Ind.
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Charles Ladd Lewis	Vassar
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Mildred Reynolds Lewis	Detroit
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Ralph Reinhard LeWright	Detroit
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Wilfred Joseph L'Heureux	Windsor, Ont.
Shon Kim Li	Chihli, China
Elizabeth Caroline Liebermann	Saginaw
Samuel Charles Liebert	Whiting, Ind.
James Carol Liebman	Chicago, Ill.
Paul Frederick Lienau	Flint
Hyman Lifshitz	Cleveland, Ohio
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George Herbert Likert, Jr.	Omaha, Nebr.

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 †James Donald Lindsay, g  
 Wendell William Lindsay  
 Carlton Lindstrom  
 Edward Dale Line  
 Francis Raymond Line  
 Winfield Henry Line  
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 Marian Macclay Linn  
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 Monroe Cyrus Lippman  
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 Alvin Henry Little  
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 Shu-Ting Liu  
 Joseph Arnold Livingston  
 Charles Daniel Livingstone  
 Helen Morrison Locke  
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 Hibbing, Minn.  
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 Kalamazoo  
 Powers  
 Chihli, China  
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 Boyne City  
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Floyd Aurelius Lundquist	Ann Arbor
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Harold Nathaniel Lurya	Detroit
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Irene Mathilda Lutz	Ann Arbor
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James Wight McCabe	Bay City
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Winthrop Watts McCain	Jackson

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 Ruth Elizabeth McComb  
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 Inez LaVerne McCormick  
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 Mortimer James McCoy  
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 Marian Ross MacDonald  
 Pat MacDonald  
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 Lewis William McElroy  
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 St. Joseph  
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 Holly  
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 Houghton  
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James Dormey McKinnon	York, Pa.
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James William McKnight	Birmingham
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Virginia Margaret MacLaren	Ann Arbor
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Walter Russell McLean	Ann Arbor
Ralph David McLellan	Lakewood, Ohio
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Frederic Joseph McManus	Toledo, Ohio
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Mary Ann McNamara	Iron River
Gerald McNaught	Mohall, N. Dak.
Howard Douglas McNaughton	Coldwater
Ross Ewing MacNaughton	Ann Arbor
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Cameron Kenneth MacNeil	Grand Rapids

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 Howell  
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 Spencer, Mass.  
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 Chicago, Ill.  
 Detroit  
 Chicago, Ill.  
 Fairmont, W. Va.  
 Honolulu, Hawaii  
 Springville, N. Y.  
 Allegan  
 Oak Park, Ill.  
 Ann Arbor  
 Detroit  
 Menominee  
 Erie, Pa.  
 Negaunee  
 Michigamme  
 Ann Arbor  
 Detroit  
 Punjab, India  
 Hamtramck  
 Saginaw  
 Lansing  
 Stambaugh  
 Houghton  
 Hopkins  
 Hopkins  
 Bellaire  
 Bayonne, N. J.  
 Deckerville  
 Canfield, Ohio  
 Ann Arbor  
 Ann Arbor  
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Carl Hilding Manson	Leadville, Colo.
Barwise Ward Manwaring	Ann Arbor
Lenore Gertrude Mapes	Grand Rapids
Marjorie Ursula Mapes	Chelsea
Helen Margaret Marble	Detroit
Albert Henry Marckwardt	Grand Rapids
Morey Marcus	Paterson, N. J.
Wolfe Marcus	Cleveland, Ohio
†Philip Robert Marcuse, e	Detroit
Stella Kaplan Margold	Ann Arbor
Frederick Marin	Manistique
Nels Victor Marin	Manistique
Phillip Eugene Marion	Detroit
John Donald Markey	Parkersburg, W. Va.
Joseph Peter Markey	Saginaw
Doris May Markham	Pulaski
Gertrude Beatrice Marks	Oscoda
Harold Abner Marks	Phoenix, Ariz.
Robert Frank Markt	Norwalk, Ohio
Milton Glenn Marquard	Muskegon
Carl Albert Marquardt	St. Joseph
Claude Earl Marquis	Saginaw
Dorothy Manners Marsh	Muncie, Ind.
Charles Rupp Marshall	Batavia, N. Y.
George Tyler Marshall, Jr.	Detroit
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Mary Elizabeth Marshall	Washington, D. C.
Eldred Roland Martell	Rochester
Amy Deborah Martin	Detroit
David MacKenzie Martin	Flint
Edna Thelma Martin	Charlotte
Ellis Roszel Martin	Detroit
Esther Helen Martin	Miami, Ariz.
Frank Macpherson Martin	Coldwater
Harold William Martin	Detroit
Helen Lois Martin	Boyne City
James Walter Martin	Charleston, W. Va.
John Robert Martin	Greenville, Ohio
Margaret Shoemaker Martin	Manheim, Pa.
Ralph Arthur Martin	Ann Arbor
Robert Dilts Martin	Ovid
William Gregory Martin	Chicago, Ill.
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Thomas Brand Marwil	Detroit
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Frank George Marzulla  
 Camille Eileen Masline  
 Charles Arthur Mason  
 Charles Roy Mason  
 Ira Jenckes Mason  
 Leon Alfred Mason  
 Ruth Eldora Mason  
 Willard Hamilton Mason  
 Paul Benjamin Masserman  
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 Richard Clare Masters  
 Carney Derr Matheson  
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 Raymond Wells Mathews  
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 William Hugo Matthes  
 Marjorie Matthews  
 Robert Harris Matthias  
 John Joseph Mauriel  
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 Lucile Maxwell  
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 Albert Mayer  
 Edith Matilda Mayer  
 Bona Osborne Mayhew  
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 Gaudence Megaro  
 Jessica Louise Megaw  
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 Port Chester, N. Y.  
 Niles  
 Flint  
 Chicago, Ill.  
 Victor, N. Y.  
 Highland Park  
 Dunkirk, Ind.  
 Detroit  
 Angola, Ind.  
 Grand Rapids  
 Alpena  
 Springwells  
 Grand Rapids  
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 St. Johns  
 Jackson  
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 Rochester, N. Y.  
 Paw Paw  
 Kirby, Ohio  
 Washington, Iowa  
 Port Huron  
 Cincinnati, Ohio  
 Ann Arbor  
 Parkersburg, W. Va.  
 Detroit  
 Detroit  
 Ann Arbor  
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 Battle Creek  
 Battle Creek  
 Tecumseh  
 Flint  
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 Gladstone  
 Toledo, Ohio  
 Grand Rapids  
 Lima, Ohio  
 Newark, N. J.  
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Edward Mellen	Detroit
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John B. Mellott	Ann Arbor
William Taggart Meloy	Chicago, Ill.
Margaret Claire Menard	Buffalo, N. Y.
Walter Otto Menge	Detroit
Charles Hastings Menmuir	Detroit
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John William Merkle	Waterbury, Conn.
Lilian Anna Merner	Cedar Falls, Iowa
William Henry Merner, Jr.	Cedar Falls, Iowa
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Charles Jerome Merrill	Bay City
Halsey Leo Merriman	Chicago, Ill.
Richard Bliss Merriman	Kenton, Ohio
Maxwell Mills Merritt	Albuquerque, N. Mex.
Myron Easterday Merry	Taylorville, Ind.
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Helen Metzger	Detroit
Sophie Lena Metzger	Grand Rapids
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Laura Barbara Meyer	Bay City
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Marion Louise Meyer	Saginaw
Sidney Kenneth Meyer	Cleveland, Ohio
Stanton Martin Meyer	Chicago, Ill.
Walter Dimsdale Meyer	Oak Harbor, Ohio
Leonard Meyering	Grand Rapids
Edward Horace Meyers	Ann Arbor
Joseph Hugh Meyers	Altoona, Pa.
Leo Paul Meyers	Dexter
Royal Abbott Meyers	Bantam, Conn.
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Eldon Wilson Michaels	Kansas City, Mo.
Joseph Ettlinger Michaels	Highland Park, Ill.

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Lewis Lantz Michelson	Detroit
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Jonathan Erfft Middleton	Pontiac, Ill.
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Alma Elizabeth Miller	Detroit
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Donald Colebrook Miller	Syracuse, N. Y.
Edwin Charles Miller, <i>m</i>	Detroit
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Seward Elinor Miller	Perry, N. Y.
Marjorie Helen Millett	Sutton, England
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Helen Harrison Million	Des Moines, Iowa
Adolph Joseph Milloing	Dayton, Ohio
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Fred Trucknell Mills	Sioux Falls, S. Dak.
Hayden Robert Mills	Oak Park, Ill.
Leo Edwin Mills	Endicott, N. Y.

William Lawrence Mills	Ann Arbor
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Margaret Ethelyn Milnes	Coldwater
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Frances Firma Mineau	Escanaba
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Beatrice Minty	Detroit
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Charles McLean Mitchell	Highland Park
Harry Adam Mitchell	Reed City
Herschall Eugene Mitchell	Detroit
Robert Brigham Mitchell	Toledo, Ohio
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Frances Eleanor Mode	Midland
William Daniel Casper Moebis	Detroit
Jacob William Moerlein	Cincinnati, Ohio
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Gertrude Elmyra Mohler	Ann Arbor
Carl Adam Mohr	Blissfield
Harold William Mohr	Blissfield
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Edward Clarence Mollema	Owosso
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Allan Hoyt Monroe	Detroit
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Marguerite C. Monroe	Pontiac
Stanley Edwin Monroe	Bangor
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Cleveland Alexander Moody	Sioux Falls, S. Dak.
Cuthbert William Moody	St. Thomas, Ont.
LaMar Titus Moog	Whitehall
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Marcell Louis Mooney	Kansas City, Mo.
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Bernice Day Moore	Battle Creek
Donald Leslie Moore	Watertown, N. Y.
Ethel Walfrid Moore	Detroit

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 James Donaldson Moore  
 Lloyd William Moore  
 Mary Sabin Moore  
 Price Harpst Moore  
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 Robert Lee Moore  
 Samuel Moore, Jr.  
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 Ruth Genevieve Morey  
 Charles Lumane Morgan, Jr.  
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 Kenneth Edward Morgaridge  
 Carl Harry Morgenstern  
 Catherine Marie Moriarty  
 John Joseph Moriarty  
 Robert Conway Moriarty  
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 Emory William Morris  
 Richard Charles Morrison  
 Walter LeRoy Morrison  
 Dorothy Mary Morrow  
 Helen Margaret Morrow  
 Bertram Wallace Morse  
 Florence Esther Morse  
 Frederic John Morse  
 George Leonard Morse  
 John Hinckley Morse, Jr.  
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 Allan Shirley Morton  
 Edwin Dwight Morton  
 Gladys Mary Morton  
 Hobart Crummer Morton  
 †Walter Albert Morton, g  
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 Herbert Moss  
 Irving Brewster Moss  
 Saimce Mouhidden  
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 Sault Ste. Marie  
 Sioux Falls, S. Dak.  
 Bay City  
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 Chicago, Ill.  
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 Ann Arbor  
 Detroit  
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 Sturgis  
 Chicago, Ill.  
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 Grand Rapids  
 Ann Arbor  
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 Waterbury, Conn.  
 Newberry  
 Detroit  
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 Chicago, Ill.  
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 Lake Odessa  
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 Saginaw  
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 Marcellus  
 Youngstown, Ohio  
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Junior George Muehlhauser	Sandusky, Ohio
Foorman Lloyd Mueller	La Grange, Ill.
Ruth Marion Mueller	Benton Harbor
Selma Christine Mueller, m	Mount Clemens
Franklyn Charles Mugavero	Port Huron
Stanley Nelson Muirhead	Detroit
Ada Helen Mulholland	Ann Arbor
Henry Eric Mulholland	Fort Wayne, Ind.
Helen Elizabeth Mull	Homer, Ind.
James Byron Mullen	Chicago, Ill.
William Lawrence Mullin	La Grange, Ill.
Isham William Mullree	Brooklyn, N. Y.
Herbert Lawrence Mummery	Ann Arbor
Edward James Muncaster	Chicago, Ill.
Jacob Bernard Mundstuck	Detroit
Marcus Edmond Mundwiler	Kalamazoo
Norman Ludolph Munster	New Holstein, Wis.
Guy William Munt	St. Clair
Marian Munz	Highland Park
Daniel James Murphy	Plymouth
Edith Miriam Murphy	Litchfield
Edwin James Murphy	Saginaw
Frank Hubbard Murphy	Erie, Pa.
James Francis Murphy, Jr.	Detroit
John Patrick Murphy, Jr.	Saginaw
Mildred Neota Murphy	Ann Arbor
Charles Aymer Murray	Evanston, Ill.
Esther Louisa Murray	Ypsilanti
Evelyn Margaret Murray	Jackson
Frances May Murray	East Tawas
James Frederic Murray	Saginaw
Kenneth Nelson Murray	Highland Park
Leon Larimer Murray	Livermore, Iowa
Marion Leone Murray	East Tawas
Marian Thayer Murray	Detroit
Thomas Jefferson Murray	Butte, Mont.
Wesley Lawrence Murray	St. Thomas, Ont.
Eleanor Musselman	Traverse City
Henry Tobias Muth	Lititz, Pa.
Sarah Catherine Muth	Lititz, Pa.
Helen Elizabeth Mutschler	Nappanee, Ind.
Sarah Isabel Mutschler	Nappanee, Ind.
Don Brown Myers	Zanesville, Ohio
Dorothy Louise Myers	Ann Arbor
Glen W. Myers	Columbia City, Ind.
Gordon Bennett Myers, m	Detroit
Jack Geddes Myers	Monongahela, Pa.

Vernon Bercutt Myers  
 Winters Takao Nacamura  
 Jerome Charles Nadolney  
 Tamaki Nagai  
 Elwood Yost Nagel  
 Nathan Nagle  
 Bernard August Nagelvoort  
 Andrew Nagy  
 Richard Vahey Nahabedian, Jr.  
 Vaskey Nahabedian  
 Dickran Marookch Nahikian  
 Hachibei Nakamura  
 Louise Clancy Nanry  
 James Abraham Nathan  
 Alfred Theodore Navarre  
 Mabel Elizabeth Neef  
 Ethyl M. Neelands  
 Amanda Dorothy Nees  
 Alice Celestia Neesley  
 Lawrence Nehil  
 Stanley McCormick Neill  
 LeRoy Elmer Neisch  
 Howard Neitzert  
 Abigail Rose Nelson  
 Adolph Gustave Nelson  
 Albert Nelson  
 Anna Malvina Nelson  
 †Carl Theodore Nelson, *e*  
 Edward William Nelson  
 Florence Louise Nelson  
 Orville Arius Nelson  
 Richard William Nelson  
 Ruth Edrena Nelson  
 Vernon Durward Nerger, *m*  
 Gilbert Herman Neuhaus  
 Joseph W. Neuss  
 Michael Joseph Neville  
 Nima Marie Neville  
 Dupont Morse Newbro, Jr.  
 John Jenness Newomb  
 Roger Huson Newcomer  
 †Rembert Hastie Newell, *e*  
 Philip Rutherford Newell  
 Edward Lyon Newhall  
 Ben Aubrey Newman  
 Harold Revell Newman  
 Jonas Newman  
 Harold Laurence Newmann

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 Ironwood  
 Honolulu, H. I.  
 Springville, N. Y.  
 Gowanda, N. Y.  
 Royal Oak  
 Detroit  
 Highland Park  
 Ann Arbor  
 Detroit  
 Morioka, Japan  
 Ann Arbor  
 Buffalo, N. Y.  
 Monroe  
 Jenkintown, Pa.  
 Ann Arbor  
 Minden City  
 Jackson  
 Midland  
 Beaver, Pa.  
 Detroit  
 Syracuse, Mo.  
 Detroit  
 North Muskegon  
 Deer Lodge, Mont.  
 Grand Haven  
 Escanaba  
 Escanaba  
 Owosso  
 Detroit  
 Kane, Pa.  
 Saginaw  
 Detroit  
 Pekin, Ill.  
 Newark, N. J.  
 Grand Mere, Quebec  
 Philadelphia, Pa.  
 Detroit  
 Pontiac  
 Ithaca, N. Y.  
 Garner, Iowa  
 Gull Lake  
 Detroit  
 Detroit  
 Danville, Ill.  
 Detroit  
 Chicago, Ill.



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Robert Newman	Detroit
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John Gilbert Newton	Detroit
Stanley James Newton	Sault Ste. Marie
Samuel Julius Nichamin	Detroit
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Edward Winslow Nichols	Cloquet, Minn.
Hinman Gilbert Nichols	Farmington
Howard Hunt Nichols	Kansas City, Mo.
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Margarette Idella Nichols	Howell
Robert Killip Nichols	Holcomb, N. Y.
Walter Orlin Nichols	Detroit
Elsie Rebecca Nicholson	Ann Arbor
Guy Roberts Nicholson	Hart
Hayden Coler Nicholson	Ann Arbor
Fred Henry Nickels	Marshall
Gail Nickerson	Houghton
Leo Edison Nickerson	Greenville
Cleo Helena Nicolai	Hopkins
Arthur Fred Niebuhr	Rhodesia, South Africa
Leo Lawrence Niedzielski	Bay City
Lester John Nieman	River Rouge
Benjamin Albert Niemann	Mount Clemens
Lois Ada Niethamer	Ann Arbor
William Frederick Niethamer	Ann Arbor
Woodard Adolph Niethammer	Ann Arbor
Paul Tsutomi Nishi	Honolulu, H. I.
Charles Nicolas Nissen	Port Clinton, Ohio
Roland Oswald Nissle	Ann Arbor
Arthur Frederick Nissly	Saline
Windsor Curtis Nistle	Grand Rapids
Dorothy Alice Nix	Utica, N. Y.
Eleanor Beatrice Nixon	Detroit
John T. Nixon	Attica, Ind.
Walter Maurice Noack	Detroit
George Hadley Noble	Owosso
Leslie Copeland Noble	Bay City
Aaron Nochimson	Paterson, N. J.
Alton Henry Noe, I	Mount Clemens
Herbert Elmer Noel	Port Huron
Lenore Faye Noggle	Ann Arbor
† Benjamin Augustine Nolan, Jr., e	Detroit
Abigail Berenice Noon	Jackson
Alonzo Aylsworth Norconk	Honor
Lucile Hodgson Nordyke	Ann Arbor
Clarence Windzell Norris	Houston, Tex.

William Arthur Norris	Ann Arbor
Beulah Erma North	Ann Arbor
Vivian North	Ann Arbor
Harold Joseph Northon	Detroit
Philip Munro Northrop	Detroit
Emerson J. Northway	Durand
Eveleth A. Northway	Durand
Amy Elizabeth Norton	Wellsville, N. Y.
Lee Leverne Norton	Rochester, N. Y.
Mildred Genevieve Norton	Hutchinson, Kans.
June Day Notley	Vicksburg
Frederick George Novy, Jr., m	Ann Arbor
Harold Maxwell Nowels	Rensselaer, Ind.
Thomas Albert Nowlen	Benton Harbor
Ethel Irene Nowlin	Fostoria
Daniel Clair Nufer	Wellington, Kans.
Velma Adelaide Null	Detroit
John Harold Nunneley	Mount Clemens
James Davidson Nutt	Ann Arbor
Bartlette Edward Nutter	Louisville, Ky.
Darrell Orlo Nutting	Spencer, Iowa
Harold Judd Nutting	Oak Park, Ill.
Neal McMillan Nyland	Grand Haven
Ellen Lydia Nylund	Ironwood
Harry Randolph Oakes	Trenton, N. J.
Mary Rose Oakes	Saginaw
Charles G. Oakman	Detroit
Rosemary Jean Obermeyer	Iron Mountain
Mercedes Martine O'Brien	Ann Arbor
Monica Isabel O'Brien	Ann Arbor
Herbert Edward Ochsner	Chicago, Ill.
Helen Marshall Ocobock	Montague
George Joseph O'Connell	Chicago, Ill.
Mary Agnes O'Connell	Monroe
Edwin James O'Connor	Marion, Ind.
Edmund Myron Odgers	Hubbell
Gustave Roeser O'Donnell	Billings, Mont.
Paul John Oesterle	Detroit
Elmer Emerson Oestrike	Trenton
Emory Ellsworth Oestrike	Trenton
Mary Dorothy Ogborn	Saginaw
Allen Harry Ogilvie	Kendall, Kans.
Carl Egbert Ohlmacher	Ann Arbor
Elsa Rosamond Ohlmacher	Ann Arbor
Harry Bonde Ohlson	Chicago, Ill.
Miriam Mildred Olden	Akron, Ohio
Lewis Clayton Olds	Ann Arbor
Thelma Dora Olds	Ann Arbor

Irwin Alois Olian	St. Louis, Mo.
Alexander Gordon Oliver	Alamosa, Colo.
Melvin Albert Oll	Detroit
Valeria Louise Oll	Detroit
Lucinda Elizabeth Olmsted	Danville, Ill.
Thomas Duval Olmsted, Jr.	Dillon, Mont.
Edwin Judson Olney	Ann Arbor
Alberta Reynolds Olson	Bronxville, N. Y.
Edward Theodore Olson	Cadillac
Olof Harry Olson	Manistique
Raymond Olson	Chicago, Ill.
Waldo Albion Olson	Detroit
Lawrence Clark Oman	Ann Arbor
Francis Leo O'Melia, I	St. Louis
George Dean O'Neill	Ann Arbor
Emelie Josephine Oppenheim	Saginaw
Robert David Orcutt	Owega, N. Y.
Frances Agnes O'Reilly	Saginaw
Edward Bernard Ornstein	Appleton, Wis.
Mary Gonzaga O'Rourke	Ann Arbor
Edith Mary Orr	Manistique
William Edward Osband	Royal Oak
LeRoy Longfellow Osborn	Bellefontaine, Ohio
Wayne Rooh Osborn	Hudson
Allen Roswell Osborne	Painted Post, N. Y.
Abraham Oserowsky	Saginaw
Walter Frederick Osius	Detroit
Carroll Lee Osmun	Ann Arbor
Monroe Mortimer Osmun	Ann Arbor
Bernice Maxwell O'Toole	Ann Arbor
George William Ott	Muskegon
Gertrude Bertha Ottmer	Ann Arbor
Stewart Charles Oviatt	Lapeer
Ellsworth Cuthbert Owen, I	Sault Ste. Marie
Ronald Richard Owens	Angola, Ind.
Beulah Mary Packard	Merrill
Edna Louise Packer	Ann Arbor
Franklin Lyman Page	Marshall
Margaret Mahala Page	Harvey, Ill.
Hardy Pagels	Ann Arbor
Ruth Mary Paine	Detroit
Frank Clyde Painter	Ann Arbor
Ruth Adele Painter	Ann Arbor
David Paley	Wilmette, Ill.
Bessie Ione Palmer	Ann Arbor
Lowell Mead Palmer	Grand Rapids
Marion Lucille Palmer	Detroit
Robert Sherman Palmer	Ann Arbor

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 William Sylvester Palmer, Jr.  
 Lester Orville Palmiter  
 Ming Pan  
 John Panchuk  
 Clarence Alphanzo Paquin  
 Elizabeth Anita Paravano  
 Steward Henry Pardee  
 Lon Henri Pardo  
 Henry Buchtel Parfet  
 Fred Arthur Parish  
 Agnes Cashin Parker  
 Byron Walter Parker  
 Clarke Alonzo Parker  
 Constance Parker  
 Frank Lindley Parker, Jr.  
 Joseph Haskell Parker  
 Frederic Culver Parker  
 George Eokars Parker  
 John Howard Parker, Jr.  
 Leander Connerly Parker  
 Margaret Hannah Parker  
 Warren J. Parker  
 Warren Robert Parker  
 William Stephen Parker  
 Leon Ardell Parks  
 Leonard Beaumont Parks, /  
 Merel Ruth Parks  
 Horatio Fanning Parmelee  
 †Mark Parnall, g  
 William Edward Parnall  
 Ormond Robbins Parr  
 Frances Pauline Parrish  
 Elizabeth Paulding Parrott  
 Mary Miner Parrott  
 Joseph Herbert Parsons  
 Henry Joseph Partika  
 Helen Alice Partlow  
 Marie Paryski  
 Marie Rose Pasquier  
 William Warren Passen  
 Arthur Sylvester Pasternacki, m  
 Marie Helen Patronskey  
 Edwin John Pattee  
 George Lucerne Pattee  
 James McCready Patterson, Jr.  
 John Watson Patterson  
 Kathleen Richmond Patterson

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 Chicago, Ill.  
 Lansing  
 Hunan, China  
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 Sault Ste. Marie  
 Washington, D. C.  
 Clinton  
 Wyandotte  
 Golden, Colo.  
 Bayonne, N. J.  
 Detroit  
 Hastings  
 Ann Arbor  
 Ann Arbor  
 Clinton  
 Detroit  
 Lockport, N. Y.  
 Harlan, Iowa  
 Youngstown, Ohio  
 St. Louis, Mo.  
 Hastings  
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 Elkhart, Ind.  
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 Birmingham  
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 Jackson  
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 Battle Creek  
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 Toledo, Ohio  
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 Putney, Ga.  
 Putney, Ga.  
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William Calvin Patterson  
Joseph Burton Pattinson  
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Mary Josephine Patton  
Walter Gilmore Patton  
Caroline Paull  
Helen Evelyn Paulson  
Mary Turner Payne  
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Albert Taylor Peck  
Vera Gene Peck  
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Nellie Warner Peckham  
Margaret Belle Peet  
Joseph Peilen  
Sara Louise Pelham  
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Homer Charles Pelton  
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Sarah Louise Pennington  
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Bertram Sturgis Perham  
†Lilian Alleyne Perkins, g  
Maurice Perkins  
Beahl Theodore Perrine  
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Josephine Bowers Perry  
Russell Taylor Perry  
Dean Wickwire Persing  
Dewitt Ben Peters  
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James Winston Peters  
Ralph Emerson Peters  
Adelyn Ann Peterson  
John Roys Peterson  
Milton Aldyn Peterson

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Birmingham  
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Dexter  
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Willis  
Oak Park, Ill.  
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Vestal, N. Y.  
Ann Arbor  
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Clyde, Ohio  
Charlotte  
Port Washington, Wis.  
Youngstown, Ohio  
Monroe  
Manistique  
Cedar Springs  
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Ruth Frances Petertyl	Traverse City
Ralph Devon Pethel	Ann Arbor
Frances Willard Pettibone	Ann Arbor
Jac Olde Pfeifer	Detroit
John Henry Pfeiffer	Edmore
Alice Lydia Pfeil	Bad Axe
Philip Martin Pffoffmann, Jr.	Worcester, Mass.
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Dudley Maynard Phelps	Manton
Frederick Martin Phelps, Jr.	Newark, N. Y.
Nelson Dwight Phelps	Milwaukee, Wis.
Stanford Newton Phelps	Detroit
Beatrice Evelyn Phillips	Niles
Harold Newell Phillips	Detroit
John Watson Phillips	Big Rapids
Reginald Phillips	Norwood, N. Y.
Robert Ashley Phillips	Fenton
William Ledyard Phillips	Elyria, Ohio
Charles Johnson Phinney, Jr.,	Monroe
Robert B. Pickard	Gary, Ind.
Joseph John Piekarski	Manistee
Clarence Trevor Pier	Battle Creek
George Meacham Pierce	Hamburg, N. Y.
Ralph William Pierce	Kingsley
Richard Kimball Pierce	Lakewood, Ohio
Everett Frederick Pierson	Sparta
Elizabeth Jeanette Pike	Royal Oak
Melvin Herbert Pike	Flint
Dalton Jefferson Pilcher	Washington, D. C.
Alfred John Pingel	Mount Clemens
Gilbert Bissell Pingree	Grosse Pointe
Frederick Harry Pinney	Cass City
Grant Edward Pinney	Cass City
†Ralph Rudolph Piper, m	Detroit
Florence Winifred Pittelco	Jackson
Eleanor Plain	Aurora, Ill.
John Guinang Plain	Aurora, Ill.
Marion Henderson Planck	Kansas City, Mo.
John Baptist Plastino	Spokane, Wash.
Charlotte Cordelia Platt	Detroit
Dorothy Louise Platt	Buffalo, N. Y.
Harry Herman Platt, l	Detroit
Richard Shackelford Platt	Traverse City
Louise Marian Pletke	Winona, Minn.
Edna Myrtle Poe	Ypsilanti
Calvin Elder Pollins	Ann Arbor

Donald Alexander Pollock	Yale
Aldridge Weber Pollum	Du Bois, Pa.
John Frederick Pontius	Flint
William Lawrence Pontius	Flint
Evelyn Margaret Poor	Ann Arbor
Leokadya Popowska	Detroit
Homer B. Porritt	Pontiac
Claude Gillis Porter	Corry, Pa.
Helen Marie Porter	Detroit
Raymond Henry Pospeshil	Detroit
Frances Dorothy Post	Byron Center
Mary Elizabeth Postlethwaite	Natchez, Miss.
Robert Jesse Potter	Jackson
Alice Louise Powell	Detroit
Elizabeth Rush Powell	St. Louis, Mo.
Eugene Barnum Power	Traverse City
Jeanette Mary Power	Toronto, Ont.
†Ralph Waldo Power, g	Niles
Oscar Edwin Powers	Fredonia, N. Y.
Raymond Southerland Powers, l	Youngstown, Ohio
Charles Edward Pownall	Grafton, W. Va.
Irma Elizabeth Pracht	Ann Arbor
Milton Lincoln Prag	Detroit
Edgar Smith Prall	Youngstown, Ohio
Lillian Bertha Prance	Detroit
Arthur Jergen Prange	Grand Rapids
†Arnold Elwyn Pratt, g	Ann Arbor
Clifford Calkins Pratt	Elmira, N. Y.
Wyman George Pratt	Fredonia, N. Y.
Catherine Lucille Prechtel	Norwalk, Ohio
Charles Frederick Preece	Toledo, Ohio
Marshall Arnot Prehn	Cleveland, Ohio
Philip Joseph Prenevost	Iron Mountain
Moses Robert Prenner	Rochester, N. Y.
James Hendry Prentiss, Jr.	Kenilworth, Ill.
Calvin Hall Preston	St. Joseph
David Harold Preston	Ann Arbor
Howard Merriam Preston	Battle Creek
Richard Joseph Preston, Jr.	Chicago, Ill.
Kenneth Graydon Prettie, l	Ann Arbor
Lawrence Preuss	Utica, Ill.
Garrett A. Hobart Price	Beatrice, Nebr.
Joseph Thomas Price	Chicago, Ill.
Loraine Foster Price	Niagara Falls, N. Y.
Robert Francis Price	Bay City
Ruth Price	Grand Rapids
Ruth Alice Price	Ann Arbor
Kenton Malone Prichard	Ashland, Ky.

Armistead Scott Pride	Washington, D. C.
William Frederick Pringnitz	Mount Clemens
Jack Nicholas Pritzker	Chicago, Ill.
Margaret Ellen Probeck	Archbold, Ohio
Florence Louise Probst	Ann Arbor
Verna Gladys Prochnow	Ann Arbor
Joseph Frederic Proctor	Pequaming
Edward Christian Prophet	Detroit
Andrew Eugene Propper	Cleveland, Ohio
Richard Herbert Mulvane Prosser	New Connerstown, Ohio
Mattie Glover Proudfoot	Dobbs Ferry, N. Y.
Percy Prout	Detroit
Charles Russell Pryce	Ann Arbor
Millard Handley Pryor	Detroit
Thomas Marion Pryor	Detroit
William Henry Puckelwartz	Chicago, Ill.
Howard Louis Puckett	Detroit
Dorothy Dawn Pulfrey	Ann Arbor
Bernard Pupko	Detroit
Agnes Gray Purdie	Wyandotte
Clayton Calvin Purdy, I	Detroit
Clinton Edward Purdy	Ironwood
Margaret Aileen Purdy	Detroit
Artie Gilbert Purse	Detroit
Charles Kingsley Purton	Mount Clemens
Ellenor Bogley Putnam	Detroit
Harriet Rachel Putnam	Constantine
Leslie Charles Putnam	Caro
Lynn Daniel Putnam	Warren, Pa.
Mark Borland Putney	Kalamazoo
Dorothy Marie Putt	Kalamazoo
Chalmers Harris Quaintance	Grand Rapids
August George Quandt	Detroit
James Allan Quayle	Owosso
William Gerald Quigley	Dexter
Alexander Beul Quirk	Ypsilanti
Daniel Trowbridge Quirk	Ypsilanti
Henry Rabnowitz	Brockton, Mass.
William Biggs Rafferty	Napoleon, Ohio
Thurlow Milton Ralph	Syracuse, N. Y.
Mildred Elizabeth Rambo	Saginaw
Helen Salmon Ramsay	Ann Arbor
Robert Greenless Ramsay	Ann Arbor
Benjamin Dwight Ramsdell	Mount Clemens
James Kenneth Ramsey	Butler, Pa.
Elizabeth Powell Ranck	Grand Rapids
Alice Lorena Randall	Takoma Park, Md.



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Sarah Grace Randall	Fort Wayne, Ind.
Wayne MacKenzie Randall	Le Roy, N. Y.
Carroll Rankin	Shelby
Florence Louise Rankin	Marine City
Harold Eugene Rankin	Cleveland, Ohio
Hilda Margaret Rankin	Ann Arbor
Ruth Aileen Rankin	Ann Arbor
Maurice Cameron Ransford	Caro
Walter Hills Ransford	Detroit
J. Theone Ransom	Kalamazoo
Walter John Rantanen	Middleville, N. Y.
Ralph Eugene Rash	Ann Arbor
Sara Raskind	Detroit
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Ralph Rhett Rathbone	Chevy Chase, Md.
Stanley William Rathburn	Ann Arbor
Earnest Kirkland Ratliff	Lake Charles, La.
Robert Matthew Rattray	Coldwater
Earl Raudman	Constantine
Zita Anne Rauner	Hartford
Chester Alfred Ray	New Era
Dorothy Ray	Manistee
Helen Madge Ray	Manistee
Muriel Helen Ray	Chicago, Ill.
Jonas Berk Rayman, m	Toledo, Ohio
Milton Samuel Raymond	Adrian
Thelma Marie Raymond	Sault Ste. Marie
Emmalou Brewer Rea	Ann Arbor
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Elizabeth Grierson Read	Richland
Elizabeth Olcott Read	Alpine
Marjorie Avis Read	Highland Park, Pa.
Murray Ernest Read	North Vernon, Ind.
Paul Kingsley Read	Highland Park
Raymond Mills Read	Rocky River, Ohio
Carol Verona Reader	Howell
Bernard Joseph Reagan	Grand Rapids
Russell Roy Reagh	Ann Arbor
Glenn Leo Rearick	Sand Lake
Glenn Orville Rearick	Gary, Ind.
Clifton Kinney Reavey	Freeland
Marion Chalmer Redfern	St. Johns
Merrill Frank Redfern	Lansing
Helen Janet Redmond	Grand Rapids
Edward Theodore Reece	Jackson

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 John Addison Reed  
 Lloyd F. Reed  
 Marie Gladys Reed  
 Morris Osborne Reed  
 Robert Vernon Reed  
 David Reel, Jr.  
 Crosby Rees  
 George Salmon Reeves  
 Georgiana Marguerite Reeves  
 †Norman Carl Reglien, *m*  
 Walter Albert Reichart  
 Arthur Walter Reichert  
 Priscilla Alberta Reichert  
 Regina J. Reichmann  
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 Margaret Sophia Reid  
 Wesley Grattan Reid  
 Aileen Frances Reilley  
 Edgar Joseph Reilly, Jr.  
 †Arthur Henry Reimann, *d*  
 Edward William Reinert  
 †Flora Boston Reinhardt, *ed*  
 Charles Austin Reinke  
 Miles Conrad Reinke  
 Eleonora Kathleen Reinvaldt  
 Theodore Charles Reissing  
 Virgil Sylvester Reiter  
 Martha Helene Remski  
 Neil Phelps Renehan  
 Harry Willard Reninger  
 Francis Galen Renkenberger  
 Rachael Dickson Reno  
 Edwin Doane Rentschler  
 Freda Doane Rentschler  
 Robert Bradway Renwick  
 Willem Petrus Retief  
 George Harley Reynolds  
 Harry Morton Reynolds, Jr.  
 Irving Edward Reynolds  
 Edythe Marie Rhinevault  
 Marcus Morton Rhoades  
 Theodore Whitney Rhodes  
 Gilbert Rian  
 Louise Riblet  
 Allen Buckner Rice

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 Culver, Ind.  
 Lake Odessa  
 Cadillac  
 Grand Rapids  
 Dixon, Ill.  
 Youngstown, Ohio  
 Kalamazoo  
 Rapid City, S. Dak.  
 Ann Arbor  
 Michigan City, Ind.  
 Toledo, Ohio  
 Toledo, Ohio  
 Erie, Pa.  
 Seattle, Wash.  
 Redford  
 Detroit  
 Detroit  
 Highland Park  
 Youngstown, Ohio  
 Iron River  
 Chicago, Ill.  
 Ann Arbor  
 Milwaukee, Wis.  
 Milwaukee, Wis.  
 Detroit  
 Hopkins  
 Hammond, Ind.  
 Monroe  
 Santa Fe, N. Mex.  
 Detroit  
 Youngstown, Ohio  
 Swissvale, Pa.  
 Ann Arbor  
 Ann Arbor  
 Fenton  
 Pretoria, South Africa  
 Ann Arbor  
 Grand Rapids  
 Laurium  
 Saginaw  
 Ann Arbor  
 Owosso  
 Felch  
 Muskegon  
 Detroit

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Gordon Owen Rice	Detroit
James Alfred Rice	Flint
Virginia Anabel Rice	Ch'cago, Ill.
Fredric Parsons Rich	Southhold, N. Y.
Hazel Marie Rich	Ann Arbor
Myrene Karen Rich	Ogden, Utah
Frank Leslie Richards	Muskegon
Gladdis Evelyn Richards	Ann Arbor
Howard Lester Richards	Grand Rapids
Inez Weatherby Richards	Ann Arbor
Marguerite Mary Richards	Detroit
†Raymond Richards, <i>c</i>	Leetonia, Ohio
Alice Elizabeth Richardson	Dixon, Ill.
Dudley Clayton Richardson	Highland Park
Frederick Dean Richardson	Alpena
Gerald Walter Richardson	Charlevoix
Harvey L. Richardson	La Junta, Colo.
Raymond Gregg Richardson	Westfield, N. Y.
Ruth Wilhelmina Richardson	Bay City
Stanley Henry Richardson	Uby
Harry Richman	Elizabeth, N. J.
Bertha Johanna Richter	Spokane, Wash.
Clarence William Riddell	Hart
Theodore Bruce Rider	Ann Arbor
Marjorie Ross Ried	Lumberton, N. J.
Edward Bourne Riedle	Virden, Ill.
Catharine Doane Riggs	Ann Arbor
Owen Clyde Rindfusz	Fort Wayne, Ind.
Miriam Lucile Risley	Pontiac
Harold George Ristine	Ann Arbor
Louise Edna Rittenhouse	Cheboygan
Nellie Louise Rittenhouse	Cheboygan
Clare Revilo Rittershofer, <i>m</i>	Ann Arbor
Gladys Marie Roach	Detroit
Helen Margaret Roach	Detroit
Maxine Elizabeth Roach	Niles
Edward John Roark	Bushnell, Ill.
Alice Jeanetta Robbins	Ann Arbor
Putnam William Robbins	Iron Mountain
Elliott Carstens Roberts	Grand Rapids
Frank Symons Roberts, Jr.	Omaha, Nebr.
Hazel Elizabeth Roberts	Detroit
Louise Marion Roberts	Detroit
Bruce Chaffee Robertson	Pentiac
Louis Robertson	Chevy Chase, Md.
Oren Lester Robertson	Detroit

William James Robertson, Jr.	Romeo
Donald Spottswood Robins	Detroit
Harold A. Robinson	Detroit
Harry Louis Robinson	Toledo, Ohio
†Jack Robinson <i>e</i>	Buchanan
Lewis Noble Robinson	Salt Lake City, Utah
Mary Margaret Robinson	South Haven
Sigmund Albert Robinson	Detroit
Thomas Holston Robinson	Blytheville, Ark.
William Harrison Robinson	Owosso
Wisner Penoyer Roby	Saginaw
Burton Willis Rockwell	Grand Rapids
Dorothy Eloise Rockwell	Jackson
Hiel Malcolm Rockwell	Pontiac
Mary Eileen Rockwood	Ann Arbor
William Leighton Rodgers	Grand Rapids
Ernestine Roe	Plymouth
Eva Merle Roe	Plymouth
Herbert Lee Roe	Buchanan
Arnold Elmer Roehl	Wausau, Wis.
William Daniel Roeser	Buffalo, N. Y.
Donald Davenport Roff	Wichita, Kans.
Dorothy Spencer Rogers	Detroit
Harriett Elizabeth Rogers	Somerset, Ind.
William Hume Rogers	Flint
Winfield Heyser Rogers	Grand Rapids
Abraham Solomon Rogoff, <i>m</i>	Detroit
Myron Charles Rohtert	Woodville, Ohio
James William Rolfe	Cortland, N. Y.
Mark Alexander Rolfe, Jr.	Chicago, Ill.
Ward Miller Rolland	Alamogordo, N. Mex.
Charles Latimer Rollins	Altoona, Pa.
William Winston Romine	South Bend, Ind.
Harry Adam Rommel	Sturgis
Raymond Bradley Roof	Battle Creek
Myrtle Ruth Rooks	Grand Rapids
Francis Lester Rooney	Mount Clemens
Mabel Leona Root	Ann Arbor
Marjorie Evelyn Rorick	Adrian
Eunice Younglove Rose	Hammondsport, N. Y.
Howard Eugene Rose	Beulah
Hugo Henry Rose	Harrisburg, Pa.
Lisle Abbott Rose	Jackson
William Kniss Rose	Lakewood, Ohio
Marjorie Carol Rosecrans	Tecumseh
Gladys A. Rosenbaum	Kalamazoo
Simon Frederick Rosenbaum	Kalamazoo

Sylvan Stern Rosenbaum	Kalamazoo
Herbert Louis Rosenblum	Gladstone
Roy Philip Rosengarten	Toledo, Ohio
Harry Rosenheim	Manhattan Beach, N. Y.
Carolyn Alice Rosenthal	Johnstown, N. Y.
Casper Louis Rosenthal	Flint
Jacob Jay Rosenthal	Detroit
Ruth Rosenthal	Evansville, Ind.
Sydney Rosenthal, <i>m</i>	Newark, N. J.
Newton Rosenzweig	Phoenix, Ariz.
Gabriel Rosin	Cleveland, Ohio
Lynn George Rosino	Sandusky, Ohio
James Louis Rosoff	Grand Forks, N. Dak.
Byard Straight Ross	Ann Arbor
†Donald K. Ross, <i>e</i>	Cincinnati, Ohio
Frank Edward Ross	White Hall, Ill.
George Wilkinson Ross, Jr.	East Moline, Ill.
Hugh Archibald Ross	Port Huron
Helen Louise Roszel	Royal Oak
Herschell Charles Roth	Newport, Ky.
Laurence Solberg Roth	Wilmette, Ill.
Alfred Albert Rothschild	Gary, Ind.
William Allan Rothstein	Cleveland, Ohio
Joseph David Rotigel	Clifton Springs, N. Y.
Adeline Harriette Roumm	Flint
Morris Roumm	Flint
Lawrence Henshaw Row	Detroit
John Philip Rowe	Missoula, Mont.
John R. Rowe	Benton Harbor
Marion Angwin Rowe	Marysville
Doris Kathryn Rower	Sylvania, Ohio
Margaret Allen Rowling	Ann Arbor
Donald James Roxburgh	Traverse City
Elden Roxburgh	Evart
Virginia May Royce	Ann Arbor
William Leland Royer	Battle Creek
Milton Rozen	Cedar Rapids, Iowa
Louis Francis Rubelman	Owosso
William Aaron Ruble	Chicago, Ill.
Willard Arnold Ruch	Barberton, Ohio
Marjorie Gertrude Rudell	Sault Ste. Marie
Edward August Rudolph	Alpena
Ralph Charles Rueger	Highland Park
Earl DeWitt Ruetz	Warren, Pa.
Ernest Alvin Ruetz	Warren, Pa.
Howard Clinton Rufus	Ann Arbor
William Howard Ruh	Yale

Ralph Henry Ruhmkorff  
 Enrique Luis Ruiz  
 Rebecca Winston Ruley  
 Vincent F. Rumler  
 Lawrence A. Runciman  
 Harold Simon Ruslander  
 Howell Russ  
 Alice Josephine Russell  
 Claud Russell  
 Elizabeth Helen Russell  
 John McFarlane Russell  
 John Richmond Russell  
 Marian Ethel Russell  
 Robert Lewis Russell  
 Sherwood Ross Russell  
 Harry F. Rust  
 Maxine Rust  
 Albert Joseph Ruten  
 William Henry Ruten  
 Helen Gretchen Ruth  
 Robert Freeborn Ruthruff  
 Elsa Ruyl  
 Jeanne Ryan  
 Amar Nath Ryar  
 John Norman Ryrholm  
 Charles Toby Sabel  
 Clare Whitbeck Sabin  
 Leo Alfred Sabine  
 Julius Hamilton Sachs  
 Geraldine Lucille Sackett  
 Benjamin Sacks  
 Mendel Jacob Safer  
 Mildred Hortense Safford  
 Benjamin Jay Safir  
 Ethel Margaret Sagendorph  
 Myrle Edward St. Aubin  
 Duane Charles Salisbury  
 Sarah Eliza Salisbury  
 Shirley Souter Salisbury  
 Fritshof Theodore Sallness  
 Jerome Lenard Salm  
 Elmer Henry Salzman  
 George Washington Sample, Jr.  
 Paul Curkeet Samson  
 Margaret Elvira Sandberg  
 Willard Gideon Sandberg  
 Ralph Andrew Sandeen  
 Lester Sandelman

La Fayette, Ind.  
 La Paz, Bolivia  
 Saugatuck  
 Jackson  
 Williamston  
 Buffalo, N. Y.  
 Red Lick, Miss.  
 Ann Arbor  
 Ypsilanti  
 Saginaw  
 Trenton, N. J.  
 Manistee  
 Peru, Ind.  
 Ann Arbor  
 Flint  
 Detroit  
 Ann Arbor  
 Detroit  
 Quincy, Ill.  
 Flint  
 Bucyrus, Ohio  
 Brooklyn, N. Y.  
 Port Huron  
 Khanki, Punjab, India  
 Chicago, Ill.  
 Chicago, Ill.  
 Wolcott, N. Y.  
 Detroit  
 Chicago, Ill.  
 Youngstown, Ohio  
 Philadelphia, Pa.  
 Flint  
 Detroit  
 Detroit  
 Jackson  
 Mount Clemens  
 Detroit  
 Hamburg, N. Y.  
 Petoskey  
 Two Harbors, Minn.  
 Evansville, Ind.  
 Yuma, Colo.  
 Ann Arbor  
 Ypsilanti  
 Manistique  
 Falconer, N. Y.  
 Oak Park, Ill.  
 Detroit

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George Monroe Sanders	Detroit
Katherine Frances Sanders	Trenton
Philip Herman Sanders	Akron, Ohio
Ruth Kathleen Sanders	Detroit
Stevens Sackett Sanderson	Detroit
James Garfield Sandry	Bay City
Allan Douglas Sanford, Jr.	Waco, Tex.
†Robert Ralph Sangbush, <i>e</i>	Detroit
†Myrtle Adelin Sanzenbacher, <i>ed</i>	Toledo, Ohio
†Domenic Anthony Sanzobrino, <i>d</i>	Willoughby, Ohio
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Cora Edith Sasman	Black Creek, Wis.
John Eugene Sass	Cleveland, Ohio
Toki Sato	Tokyo, Japan
Abraham Satovsky	Detroit
Abe David Sauber	Green Bay, Wis.
Ruth Marie Sauer	Ann Arbor
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Russell Gordon Saunders	Niagara Falls, N. Y.
Lyman Channing Savage	Chicago, Ill.
Don Brooks Savery	Ann Arbor
Albert Ernest Sawyer	Flint
Everette Wright Sawyer	Detroit
Kate Eleanor Sawyer	Pontiac
Walter Wade Sawyer	Jackson
John Raymond Saxton	Detroit
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Burt Emmett Scanlan	Michigamme
Charles William Schaefer	Pittsburgh, Pa.
Beryl Christine Schafer	Marshall
Nathan Schaffer	Newark, N. J.
Florence Christine Schaller	Ann Arbor
John Schantz	Detroit
Morris Scharf	Newark, N. J.
Ernest Carl Schatz	Toledo, Ohio
Maurice Harold Schatz	Toronto, Ont.
Margaret Dorothea Schaupner	Detroit
Raymond Lee Scheib	Saginaw
Ruth Barbara Scheinman	Los Angeles, Calif.
George Edward Schenck	Detroit
Rosina Katherine Schenck	Ann Arbor
John Gilbert Schepers	McBain
Eleanor Edith Scher	Detroit
Mary Elaine Scherer	Jackson
Robert Pauli Scherer	Detroit
Ruth vonBach Scherer	Detroit

Walter King Scherer  
 William Curt Scherer  
 Howard Isador Schermer  
 Edgar Charles Schick  
 Edward Leo Schied  
 Helene Elizabeth Shimansky  
 Marion Virginia Schindler  
 Robert George Schirmer  
 George Jacob Schirrmann, Jr.  
 Rhea Isabel Schlaack  
 Paul Andrew Schlacter  
 †Nathan Henry Schlafer, m  
 Paul Frederick Schlanderer  
 Lauren Walter Schleh  
 Florence Ernestine Schleicher  
 Miriam Arda Schlotterbeck  
 Edward Irwin Schlussel  
 Doris Theodotia Schmidt  
 Frank Guy Schmidt  
 Freda Marie Schmidt  
 Marian Enid Schmidt  
 Roland Martin Schmidt  
 Burton Lytell Schmier  
 Isidore George Schneider  
 Jacob Harold Schneider  
 Louis Alexander Schneider  
 Martha M. Schneider  
 William Otto Schneider  
 Theodore Christine Schneirla  
 Philip Frederick Schnell  
 Soll Jaina Schnitz  
 John Burton Schoenfeld  
 Carl Bronson Schoonmaker  
 Norbert Abraham Schott  
 Gladys Margaret Schrader  
 John B. Schravessande  
 Elsa Adele Schreiber  
 Philip Henry Schreyer  
 William Schrier  
 Ronald Malloch Schroder  
 Beatrice Exton Schroeder  
 Ethel Gladys Schroeder  
 Hugo Classon Schroeder  
 Orville Barnes Schroeder  
 Erwin William Schroen  
 Elsa Albertine Schuler  
 Irene Isabella Schuler  
 Emily Elizabeth Schulting  
 Carl Henry Schumacher

Ottawa, Ill.  
 Detroit  
 Munhall, Pa.  
 Crestline, Ohio  
 Jackson  
 Oak Harbor, Ohio  
 Bay City  
 Saginaw  
 Portsmouth, Ohio  
 Birmingham  
 Norwalk, Ohio  
 Detroit  
 Ann Arbor  
 Putnam  
 Ann Arbor  
 Ann Arbor  
 Detroit  
 Chelsea  
 Saginaw  
 Highland Park  
 Chelsea  
 Plymouth, Wis.  
 Detroit  
 Bayonne, N. J.  
 Detroit  
 Bayonne, N. J.  
 Dayton, Ohio  
 Grand Rapids  
 Bay City  
 Tonawanda, N. Y.  
 Benton Harbor  
 Bartlesville, Okla.  
 Kalamazoo  
 Waterloo, N. Y.  
 Plymouth  
 Grand Rapids  
 Grand Rapids  
 Newark, N. J.  
 Kalamazoo  
 Battle Creek  
 Toledo, Ohio  
 Grosse Pointe  
 Wyandotte  
 Marshall  
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 Chicago, Ill.  
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Maxwell D. Schuster, I	Detroit
Cooper Young Schuyler	Ocean Grove, N. J.
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Helen Schwartz	Elkhart, Ind.
Irving Schwartz	Bayonne, N. J.
Jacob Bernard Schwartz	Benton Harbor
Louis Adrian Schwartz, m	Cleveland Heights, Ohio
Margaret Adelaide Schwartz	Monroe
Ralph Morton Schwartzberg	Negaunee
Wilbert George Schwer	Sandusky, Ohio
Lola May Schwingel	Cohocton, N. Y.
Leland Eugene Schwichtenberg	Manitou Beach
Catherine Isabelle Scott	Rochester
Donald Stewart Scott	Grand Rapids
Eldred Henry Scott	Marine City
Eugene Edward Scott	St. Cloud, Minn.
Walter Scott	Elyria, Ohio
James Edmund Scripps II	Detroit
Milo Bainbridge Scully	Chicago, Ill.
Clayton Beakes Seagears	St. Augustine, Fla.
Harold Seagle	Worcester, Mass.
Helen Louise Searight	Detroit
David Jerome Seder	Worcester, Mass.
Glenn Frederick Seeba	Ludington
Elmer Arnold Seeger	Blissfield
Althea Bernice Seeley	Bangor
Anne Seeley	Caro
Edwin Avery Seeley	Pontiac
Eleta Chamberlain Seeley	Pontiac
George Palmer Seeley	Pontiac
Miles Gay Seeley	Ann Arbor
Fred Milton Seger	Lansing
George Henry Sehring	Joliet, Ill.
Kenneth Christian Seick	Des Moines, Iowa
Francis Peter Seider	Springville, N. Y.
Albert Girard Seidman	Brooklyn, N. Y.
Herbert Leonard Seidman	Willoughby, Ohio
Walter Stanley Seidman	Brooklyn, N. Y.
Edwin Joseph Seifert	Duluth, Minn.
Edward Seitner	Saginaw
Harry John Seits	Monroe
Harold Milan Seitz	Willoughby, Ohio
Roslyn Selker	Cleveland Heights, Ohio
Charles Paul Sellards	Ann Arbor
Helen Welsh Sellaw	Ann Arbor
John Henry Selman	Detroit
Henry Leroy Selmeier	Louisville, Ky.

†Ronald Prescott Selway, g	Middletown, Conn.
Dorothy Adele Semple	Royal Oak
Albin Joseph Sepanski	Calumet
Michael Mart'n Serafin	Colchester, Conn.
Dorothy Morton Sessions	Detroit
Frederick John Batiste Sevald	Detroit
Douglas Robert Sewell	Detroit
Herbert Mathieu Sewell	Ann Arbor
DeWitt Talmadge Sexton	Detroit
William Irvine Sexton	Grosse Pointe
Harold Louis Seyfried	Ann Arbor
Maurice Jacob Shadden	Expedit, Pa.
Walter Russell Shafer, Jr.	Elmira, N. Y.
Mainabai Wasudeorao Shahane	Poona, India
Daniel Morris Shanese	Ann Arbor
Leah Myrl Shankland	Ann Arbor
Rodney Veeder Shankland	Ann Arbor
Angus Shannon	Chicago, Ill.
McKenzie Shannon	Chicago, Ill.
Perry Belford Shannon	Cleveland Heights, Ohio
Jacob Shapiro	Cleveland, Ohio
Maxwell Blake Shapiro	South Fork, Pa.
Harold George Sharpe	Decatur, Ill.
Marguerite Elizabeth Shattuck	Coldwater
Richard James Shaull	Charlotte
John Robert Shaw, Jr.	Detroit
Mae Irene Shaw	Bay City
Mary Agnes Shaw	Nyack, N. Y.
Myron LaVerne Shaw	Youngstown, Ohio
Robert Roeder Shaw	Nyack, N. Y.
Wayne Edward Shawaker	Toledo, Ohio
Dorothy Helen Shay	Harbor Springs
Alice Katherine Shea	Detroit
Charles Eddy Shearer	Bay City
Benita Mae Shears	Benton Harbor
Stewart Joseph Sheff	Massena, N. Y.
Thyra Fern Sheffield	Valparaiso, Ind.
Roche Cornelius Shehan	Pinckney
Agnes Harriet Sheldon	Hastings
Anna M. Sheldon	Pomona, Calif.
Horace Ward Sheldon	Negaunee
Wendell Ascher Shelton	Dayton, Ohio
Lin Yu Shen	Shanghai, China.
Hale Thurel Shenefield	South Whitley, Ind.
John William Shenefield	South Bend, Ind.
Emily Louise Shepard	Rochester, N. Y.
Marjorie Albertine Shepard	Grand Rapids
Cornelia Elizabeth Shepherd	Cheboygan
Thomas Henry Shepherd	Kalamazoo

Bernice Hazel Sheppard	Owosso
Harriett Lolita Sheppard	Owosso
Margaret Almira Sheppard	Owosso
Adelaide Alden Sherer	Tarrytown, N. Y.
Grace Katherine Sherman	Ann Arbor
Guilbert Walker Sherman	Ann Arbor
Helen Ruth Sherman	Toronto, Ont.
Lea Minnie Sherman	Blissfield
Leona Lucille Sherman	Toronto, Ont.
Margaret Louise Sherman	Ann Arbor
Granville Hudson Sherwood	Springfield, Ill.
†Lucinda Jane Sherwood, e	Grand Haven
Myron Lee Sherwood	Marquette
Helen Leah Shetzer	Detroit
Kathryn Irene Shields	Highland Park
Marjorie Gertrude Shields	Detroit
Ruth Isabelle Shields	Iron Mountain
Elizabeth Maude Shier	Detroit
Louise Adele Shier	Detroit
Charlene Elizabeth Shiland	Port Huron
Frederick Hopkins Shillito	Kalamazoo
Elizabeth Irene Shilson	Detroit
Helen Beatrice Shimp	Portland, Ind.
Winifred Blanche Shimp	Washington, Pa.
Maxine Rosa Shinkman	Grand Rapids
Lucy Claire Shinnick	Detroit
Walter Cleveland Shipley	Clayton, Mo.
Joseph Harry Shipman	Binghamton, N. Y.
Blanche Delphine Shoebridge	Ann Arbor
Grace Irene Shoebridge	Ann Arbor
Boyd Watson Shoesmith	Guthrie Center, Iowa
Paul Bogart Shoff	Clinton, Ind.
Hide Shohara	Tokyo, Japan
Rose Shore	Ann Arbor
Donald Howard Shoup	Oakmont, Pa.
Herman William Shumsky	Perth Amboy, N. J.
Samuel Joseph Shure	Chicago, Ill.
Walter Clair Shutes	Adrian
George Anthony Sibilsky	Laurium
Burton Babcock Sibley	Ionia
Edward Hahn Sichler, Jr.	Detroit
Harper Giles Sichler	Detroit
Margaret Isabelle Sidney	Corunna
Belle Siegel	Cleveland, Ohio
Bernice Janet Siegel	Eveleth, Minn.
Henry Tom Siek	Parakan, Java
Robert Arthur Siewert	Detroit
Wales Wilson Signor	Ypsilanti

Marian Edith Sikes	Highland Park
Milton Julius Silberberg	Detroit
Henry H. Silberman	Detroit
Ben Silberstein	Detroit
Robert Julius Silberstein	Detroit
Eleanor Dorothy Silk	Detroit
Emerson Russell Silkworth	Manchester
Felix Fluegel Silver, <i>l</i>	Detroit
Samuel Silverman	Buffalo, N. Y.
Leslie Richmond Silvernale	Menominee
Harold Morton Silverston	Detroit
Alice Fredricka Simmons	Detroit
Allen Hume Simmons	Pontiac
Clark Randolph Simmons	East Aurora, N. Y.
Russell Hudson Simms	Port Huron
Abram Robert Simon	Lansing
Ben Seymour Simon	Newark, N. J.
David Bernard Simon	Springville, N. Y.
Ruth Izola Simon	Bloomingtondale
Robert Ossian Simonds	Chicago, Ill.
Jerome Charles Simons	Highland Park
Harold Irving Simpson	Ann Arbor
Lorene Gladys Simpson	Cleveland, Ohio
Mary Elizabeth Simpson	Ann Arbor
Robert Sydney Simpson, <i>m</i>	Ann Arbor
Wilton Alexander Simpson	Chicago, Ill.
Anne Wright Sims	Newport News, Va.
Ivan Henry Sims	Dayton, Ohio
Harry Marsh Sinclair	Toledo, Ohio
†Janet Kellogg Sinclair, <i>ed</i>	Toledo, Ohio
Stuart Harold Sinclair	Chicago, Ill.
William Siren	Detroit
Robert Marcus Skall	Cleveland, Ohio
Marguerite Julia Skeel	Cleveland, Ohio
Roland Alexander Skeel	Cleveland, Ohio
Jane Skillen	New York, N. Y.
Louisa Skillen	Ann Arbor
Floyd Howard Skinner, <i>l</i>	Onota
George Kenneth Skinner, <i>m</i>	Detroit
William Russell Skinner	Des Moines, Iowa
Harry Sklar	Bayonne, N. J.
John Sklar	Detroit
Lenore Gertrude Slack	Detroit
Lyman Webb Slack	Delavan, Ill.
Ethel May Slatcher	Syracuse, N. Y.
Willard Evans Slater	Nunica
James Hobart Slattery	Chicago, Ill.

Henry Winston Slaughter	Evanston, Ill.
Margaret Dever Slavens	Oak Hill, Ohio
Donald Gray Slawson, /	Ann Arbor
Gretchen Gray Slawson	Ann Arbor
Isabelle Graham Slawson	Flint
Aloys Henry Slingerlend	Spring Lake
Doris Lucille Slingluff	Elwell
Iris Myrtle Slingo	Toledo, Ohio
Glenn Warren Slocum	Ewen
James Ray Slocum	Flint
Sarah Helen Slocum	Ann Arbor
Lester Ervine Slosburg	Omaha, Nebr.
Hugh Howell Sloss	Moorestown, N. J.
Stanley Edgar Sloss	Louisville, Ky.
Elizabeth Slote	Constantine
Robert Daniel Slowinski	Detroit
Edgar Wilson Slusser	Oak Park, Ill.
Nathan Slutzky	Elmira, N. Y.
Joseph Bernard Small	Ishpeming
Marianna Eddy Smalley	Ann Arbor
LaBeryl Margaret Smart	Highland Park
Edna Ann Smazel	Chief
Ronald Macalister Smeaton	Ann Arbor
Winifred Isobel Gray Smeaton	Ann Arbor
Kenneth George Smiles	Pittston, Pa.
Abou Smith	Washington, D. C.
Alice Josslyn Smith	Ann Arbor
Arthur Munford Smith, /	Lansing
Bernice Miriam Smith	Toledo, Ohio
Brainard Pryor Smith	Flint
Catherine Mary Smith	Ann Arbor
Charles Edgar Smith	Hamburg, N. Y.
Charles Robert Smith	Ardmore, Okla.
Clifford Richard Smith	Detroit
Clyde Albert Smith	Moundsville, W. Va.
Colton Slaymaker Smith	Ishpeming
Constance Alison Smith	Ann Arbor
Constance Alverda Smith	Detroit
Cynthia Berry Smith	Ann Arbor
Dean Russell Smith	Union City
Eda Katherine Smith	Ary, Ky.
Edward Christopher Smith	Chatham, Ont.
Edwards Stark Smith	Milwaukee, Wis.
Eleanor Blanche Smith	Marine City
Elizabeth Candacia Smith	New York, N. Y.
Elizabeth Josephine Smith	Ann Arbor
Eugene Churton Smith	Flint

Eva Smith	Ary, Ky.
Evelyn Mar Smith	Ann Arbor
Evvah Jane Smith	Port Huron
Ferris MacArthur Smith	Elmira, N. Y.
Florence Marion Smith	Fruitport
Franklin Rupert Smith	Pekin, Ill.
Fred Sheldon Smith	Flushing
George Donald Smith	Detroit
Harold LeRoy Smith	Grand Rapids
Hubert Frank Smith	Bluffton, Ind.
Hugh Thompson Smith	Jackson
Isabelle Smith	Port Huron
Jean Gardiner Smith	Red Wing, Minn.
Kenneth Lawrence Smith	Kansas City, Mo.
Kenneth Sartwell Smith	Buffalo, N. Y.
Lester Sherald Smith	Ann Arbor
Marion Darsie Smith, m	Connersville, Ind.
Millard Thorn Smith	Detroit
Morris Abram Smith	Weston
Nellie Ermentrude Martin Smith	Charlotte
Nelson Matthews Smith	Niagara Falls, N. Y.
Olive Ruth Smith	Ann Arbor
Ralph Lowes Smith	Grand Rapids
Robert Morris Smith	Rochester, N. Y.
Sterling Lawrence Smith	Detroit
Thelma Louise Smith	Detroit
Virginia Alexander Smith	Detroit
Wayne A. Smith	Ann Arbor
Wayne Anson Smith	Petoskey
David Raymond Smock	Chicago, Ill.
Philip Richard Smyser	York, Pa.
Bernard Carlton Snedeker	Adrian
Norma Elizabeth Snell	Utica, N. Y.
George Rolland Snider	Detroit
Charles John Snoble	Elyria, Ohio
Marcia Evangeline Snow	Muskegon
Charles Edward Snyder	Ann Arbor
Donald E. Laidlaw Snyder	Detroit
Elizabeth Adeline Snyder	Detroit
Phillip Bragg Snyder	Grand Rapids
Dorothy Wills Sober	Detroit
Albert Ferdinand Soch	Fredonia, N. Y.
Horace Bernhardt Sodr	Ann Arbor
Max William Soffer	St. Louis, Mo.
David Robert Sohn	Hartford, Conn.
Herbert Spencer Sollars	Brighton
Bess Solovich	Detroit

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Vera Amelia Sonder	Chicago, Ill.
Gerald Reymond Songer	Miami, Fla.
Samuel Charles Sonkin	Roselle, N. J.
Charles Francis Sonneborn	La Porte, Ind.
Stephen Joseph Soos	Detroit
Huburtes Edward Souffrou	Grand Rapids
Robert Deloss Soules	Ashtabula, Ohio
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Charles Joseph Spaulding	Ann Arbor
Edith Lynne Spaulding	Ann Arbor
Rosalea Hazel Spaulding	Helena, Mont.
Virginia Marguerite Spaulding	Ann Arbor
Edwin Carlton Spear	Norwood, N. Y.
Melvin Harold Specter	East Chicago, Ind.
Hazel Ethel Spedding	Ann Arbor
Paul Dee Speer	Evanston, Ill.
Genevieve Mildred Speers	Williamston
Arthur Everett Spencer, Jr.	Joplin, Mo.
Charles Dee Spencer	Glencoe, Ill.
Charles Edward Spencer	Birmingham
Dorothy Mary Spencer	Jackson
Paul Rexford Spencer	Fredonia, N. Y.
Perry Cuthbert Spencer	Niles
Jacob Herman Spengler	Archbold, Ohio
Clare Robinson Sperry	Port Huron
Carleton Francis Spies	Marshall
Geraldine Bethea Spill	Pasadena, Calif.
Ethel Attrill Spilsbury	Detroit
Carl Theodore Spissman	Lakewood, Ohio
John Edward Sponseller	Canton, Ohio
John Jacob Spoutz	Ruth
Jessie Eliza Sprague	Cheboygan
Charlotte Helen Springsteen	Detroit
Genevieve Adelaide Sproat	Ionia
Leason Fayette Sproul	Delevan, N. Y.
James Allen Sproul	Lansing
Lyle Eli Squire	Carson City
Harold Randolph Stadfield	Pittsburgh, Pa.
Neil O. Staebler	Ann Arbor
Byron Clifford Staffeld	Saginaw
Catherine Josephine Stafford	New York, N. Y.
Charles Marshall Stafford	Oak Park, Ill.
Edward Douglas Stair	Detroit
Helen Natalie Stair	Ann Arbor

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George Hendrickson Stalker  
Carl Paul Stamman  
Harry Frank Stamos  
Gretchen Charlotte Stanger  
Chester Beryl Stapleton  
Margaret Beatrice Stapleton  
Edward Carhart Stark  
Hawley Edward Stark  
Norman Trenary Stark  
Willella Benitz Stark  
Ralph Ellis Starkweather  
Florinel Treat Starr  
Milton Preston Starr  
Emil Milton Staub  
Lodge DuBois Staubach  
Charity Marie Stauffer  
Kenneth Eugene Stauffer  
Josephine Martha Stearns  
Elenore Loring Steele  
Harold Owen Steele  
Jennie Bell Steele  
Dwight Moody Steere  
Herbert Steger  
Helen Elizabeth Steggall  
Myron Donald Stein  
Manley Frank Steinbaugh  
Carl Alexander Steindler  
Elvina Mabel Steiner  
Henry Sonneschein Steiner  
James Prather Steinhauer  
Donald Walton Steketee  
Chester Ernest Stellhorn  
Rachel Catharine Stellhorn  
William John Stellwagen  
George Stepanovich  
Adrian Roy Stephan  
Edward Alexander Stephen  
Harold Merton Stephen  
John Logan Stephens  
Albert Milton Stern  
S. Albert Stern  
William Henry Stern  
Frances Eloise Stevely  
Charles Arthur Stevens  
Clark Harold Stevens  
Elsie Laura Mary Stevens

Ann Arbor  
Ann Arbor  
Toledo, Ohio  
Schenectady, N. Y.  
Ann Arbor  
Pryor, Okla.  
Ann Arbor  
Detroit  
Steubenville, Ohio  
Allegan  
Ann Arbor  
Detroit  
Corry, Pa.  
Corning, N. Y.  
Grosse Point  
Glen Ridge, N. J.  
Kalida, Ohio  
Salem  
Adrian  
Harrisburg, Pa.  
Sioux City, Iowa  
Watervliet  
St. Johns  
Oak Park, Ill.  
Bay City  
Detroit  
Pontiac  
Muskegon  
Pandora, Ohio  
Gary, Ind.  
Portsmouth, Ohio  
Grand Rapids  
Ann Arbor  
Ann Arbor  
Ann Arbor  
Bridgeville, Pa.  
Ann Arbor  
Port Huron  
Vassar  
Coffeyville, Kans.  
Allegan  
Chicago, Ill.  
Cleveland, Ohio  
London, Ont.  
Ann Arbor  
Buffalo, N. Y.  
Springfield, Ill.



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Gilbert Stevens	Appleton, Wis.
Russell Eugene Stevens	Fennville
Ethel Stevenson	Ann Arbor
Dorothy Steward	St. Cloud, Minn.
Agnes Jean Stewart	Detroit
Carl Kiplinger Stewart	Detroit
Carter Crompton Stewart	Toledo, Ohio
Dorothy Margaret Stewart	Ann Arbor
Edwin Poe Stewart	Detroit
Mary Jeannette Stewart	Ann Arbor
Harold Otto Stewart	Canisteo, N. Y.
William Huron Stewart	Montpelier, Ohio
Edward Thomas Stibich, <i>l</i>	Johnstown, Pa.
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Frank Stiles, Jr.	Detroit
Floyd Adlai Stilgenbauer	Ann Arbor
Theodore O. Stimpson	Saline
William Burnham Stimson	New York, N. Y.
Marcus Jackson Stiith	Detroit
Bruce Wheeler Stocking	Cadillac
Ford Stoddard	Wilmette, Ill.
LeRoy Horner Stoddard	Ann Arbor
Leslie Selwyn Stoddard	Saginaw
Harry Baylis Stokes	Ann Arbor
Lauren Barnard Stokesberry	Indianapolis, Ind.
Edith May Stoll	Ann Arbor
Harold Franklin Stolz	Saginaw
Bernard Tamplin Stone	Wichita, Kans.
Dale Albert Stone	Kalamazoo
Dora Irene Stone	Harbor Springs
Elizabeth Alice Stone	Washington
Harold Ross Stone	Newaygo
Keith Crowl Stone	Ann Arbor
*Edith Theresa Stoneburner	Ann Arbor
William Harlan Stoneman	Ann Arbor
Ardys Berniece Stoner	Cleveland, Ohio
Miriam Faye Stotzer	Archbold, Ohio
Milton Edward Stover	Detroit
Thomas Carr Strachan, Jr., <i>l</i>	Colorado Springs, Colo.
George Adam Stracke	Detroit
John Winslow Stram	Ludington
Neal Leslie Stranahan	Flushing
Robert Carl Straub	Traverse City

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\*Died April 21, 1924.

Helen Edith Straus	Cleveland, Ohio
Alexander Paul Strauss	Detroit
Elizabeth Strauss	Ann Arbor
Margaret Louise Strauss	Ann Arbor
Edward Harold Stream	Chicago, Ill.
Eloise White Street	Ann Arbor
Edward Kenneth Streeter	Walcott, N. Y.
Harold Eugene Stricker	Bucyrus, Ohio
Ruth Kathryn Strickland	Oak Harbor, Ohio
Willard Guilbert Strickland	Hart
Harold Justus Strobel	Howell
William Henry Stroh	Detroit
Homer Dennis Strong	Detroit
Sydney Harold Stroud	Detroit
Edith Anna Struthers	Charlevoix
Albert Raymond Stryker	Grand Rapids
Alfred Parker Stuart	Marshall
Margaret Stuart	Marshall
Katherine Elizabeth Stuhrberg	Ann Arbor
Lowell S. Stump, I	Nappanee, Ind.
Harley Lorraine Stuntz	Chicago, Ill.
Ella Jay Sturgell	Ashland, Ky.
Ethel Lynn Sturgell	Ashland, Ky.
Frederic Ernest Sturmer	Port Huron
Stella Minerva Sturos	Laurium
Katherine Muriel Sturtz	Iron Mountain
Katherine Elizabeth Styer	Detroit
Oscar Muse Styron	Washington, D. C.
Shuk Suho	Detroit
Harry James Sullivan	McKeesport, Pa.
Helen Elizabeth Sullivan	Springfield, Ill.
Robert Jeremiah Sullivan	Fredonia, N. Y.
Eldon Lent Summers	Melvin
Virginia Caroline Summers	Ensley, Ala.
Pauline Elizabeth Summy	Lancaster, Pa.
Butler Arthur Sumner	Mount Clemens
Ching Tsen Sun	Peking, China
Vera Sundelson	New York, N. Y.
Julia Elizabeth Supernaw	East Jordan
James Milton Surbrook	Jackson
Russell Ames Surbrook	Jackson
Carroll Rossman Sutton	Pontiac
Jean Helen Svengard	Detroit
Frances Swain	Ann Arbor
Irene Melanie Swain	Chicago, Ill.
James Mather Swan	Fowler, Ind.
Homer D. Swander	Kalamazoo

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Darrell Arbaugh Swann	Canton, Ohio
Elsa Hilma Swanson	Ann Arbor
Vernon Leonard Swanson	Oak Park, Ill.
Philip William Swartwout	Marshall
Verna Ann Swartz	Toledo, Ohio
Karl Ogden Swayze	Flint
Marcia Ruth Swayze	Holly
Joseph Anthony Sweeney	Ann Arbor
Robert Donald Sweeney	Detroit
Marjorie Florence Sweet	Dowagiac
Harold Frederic Swick	Detroit
Edward James Swink, Jr.	Detroit
Laura Jean Swinton	Charlevoix
Margie Swinton	Charlevoix
Charles Hanawalt Sword	Mansfield, Ohio
Charles Sumner Syphax	Washington, D. C.
Joe McIntyre Taggart	Ludington
Gerald Charles Talbot	Canisteo, N. Y.
Ruth Lucile Tallman	Toledo, Ohio
Harold Sidney Tannenholtz	Detroit
Nellore Day Tanner	Corning, N. Y.
Virginia Scott Tanner	Jackson
Clarence Stranahan Tappan	Jackson
Robert Blair Tarr	Greensburg, Pa.
Sophia Poppers Tashof	Washington, D. C.
Ralph Kenneth Tasker	Lake Odessa
Louise Marie Taubert	Iron River
Clifford Benjamin Taylor	Andrews, Ind.
Earl Wilfred Taylor	Rochester, N. Y.
Fred Daniel Taylor	Shepherd
Howard Stewart Taylor	Detroit
James Donald Taylor	Mount Clemens
Marion Frances Taylor	Detroit
Norman Eugene Taylor	Sarnia, Ont.
Ralph Emmerson Taylor	Ann Arbor
Ross Louis Taylor	Battle Creek
Stewart William Taylor	Gary, Ind.
William Earl Taylor	Ann Arbor
Laurence Lyon Teal	Midland
Pauline Teed	Ann Arbor
Reed Wallace Teed, <i>m</i>	Sayre, Pa.
Eldden John Teeter, <i>m</i>	Detroit
Gladys Teggerdine	Clarkston
Victor Tasku Telescu	Detroit
Oscar Sarzola Teller	Lima, Peru
Frederic George Telmos	Saginaw
Louis Tendler	Detroit

Alexander Teppert  
 Charles Hiram Terman  
 Floyd Myron Tesnow  
 Violet Henriette Tessin  
 Norman Roy Thal  
 Lida Marguerite Thatcher  
 Lyle O. Thayer  
 Pearl Beng-Choo Theo  
 Arthur Alexander Theuerkauf  
 Edwin Luther Theurer  
 Eleanore Grace Thews  
 Arthur William Thiel  
 Morgan Adams Thieme  
 Ben Davies Thirlby  
 Clyde Thomas  
 Dale Edward Thomas  
 Edith Crowell Thomas  
 Edwin Wayne Thomas  
 Frances Minerva Thomas  
 Grace Prior Thomas  
 Laura Elizabeth Thomas  
 Willard Robert Thomas  
 George William Thomasson  
 Arthur Charles Thompson  
 Arthur LaVerne Thompson  
 Dorothy Evelyn Thompson  
 Elizabeth Mary Thompson  
 Esten Josephine Thompson  
 George Donald Carlyle Thompson  
 Jessie Wilma Thompson  
 Joseph John Thompson  
 Marion Dorothy Thompson  
 Melva Kathryn Thompson  
 Thorwald Christian Thomson  
 Edward Wilson Thomson  
 Richard Evans Thomson  
 Richard Larminie Thomson  
 Sterling Hunter Thomson  
 Eckhart Thon  
 George Gilbert Thorne  
 Nellie Thomas Thornton  
 Belding Duke Thorpe  
 Isabel Jo Thorpe  
 Catherine Frederikke Thorsoe  
 Clarence George Thorson  
 Grant Lekenzie Thurston  
 Wendell Sinclair Thurston

Detroit  
 Chicago, Ill.  
 Akron, N. Y.  
 Saginaw  
 Toledo, Ohio  
 Geneva, N. Y.  
 Allegan  
 Taudjong Balei, Sumatra  
 Menominee  
 Ann Arbor  
 Ann Arbor  
 Grand Rapids  
 Fort Wayne, Ind.  
 Detroit  
 Cleveland, Ohio  
 Saginaw  
 Manistique  
 East Liverpool, Ohio  
 Constantine  
 Detroit  
 Detroit  
 Nanticoke, Pa.  
 Terre Haute, Ind.  
 Chicago, Ill.  
 Corunna  
 Highland Park  
 Wilmette, Ill.  
 Holliday's Cove, W. Va.  
 Detroit  
 St. Louis, Mo.  
 Newark, N. J.  
 Flint  
 Bellaire  
 Ludington  
 Coshocton, Ohio  
 Camden, N. J.  
 Highland Park  
 Lima, Ohio  
 Chicago, Ill.  
 Detroit  
 Ann Arbor  
 Berwyn, Ill.  
 Pontiac  
 Clinton, Iowa  
 Gladstone  
 Newport, Ky.  
 Washington

Ward Edgar Tippet	Grand Rapids
Esther Ophelia Tibbs	Ann Arbor
Rebecca von Tick	Detroit
Gunther Ernest Tiedke	Saginaw
Parker Henry Tilbe	Dayton, Ohio
Francis Lothrop Tilden	Evanston, Ill.
Lloyd Edward Tillett	Peru, Ind.
Everett Douglass Tobin	Calumet
Hans Willis Tobler	Three Rivers
Orson Wilson Tock	Ann Arbor
Dorothy Margaret Todd	Trafford, Pa.
John David Todd	Beaumont, Tex.
Adelbert Kirsten Toepfer	Birmingham
Arnold Ralph Toivonen	Hancock
Pearl Aurora Toivonen	Hancock
Alvin William Tolle	Detroit
Ward Clarence Tollzien	Detroit
Ferdinand Joseph Tomczyk	Detroit
Catherine Elizabeth Tompkins	Toronto, Ont.
Willis Edward Topper	Greensburg, Pa.
Harold Clayton Torrey	Dowagiac
Helene Adelia Torrey	Dowagiac
Lyle Blair Torrey	Dowagiac
John Henry Graham Totzke	Benton Harbor
David Saul Touff	Detroit
Bernice Ethel Townsend	Detroit
Fern Irene Townsend	Pontiac
John MacMillan Townsend	Wyandotte
Margaret Charlotte Townsend	Detroit
Russell Barry Townsend, <i>m</i>	Everett, Wash.
Earl Masters Towzey	Butler, Pa.
Minnie Beulah Tracey	Battle Creek
Elsie Howlett Tracy	Grand Rapids
Frederick Staples Tracy	Chicago, Ill.
George Kenneth Tracy	Youngstown, Ohio
John Harvey Tracy	Chicago, Ill.
Thomas Carroll Tracy	Holyoke, Mass.
Margaret Isabelle Trainer	Salem, W. Va.
Rosamond Geraldine Travis	Big Rapids
Verna Mae Trebilcock	Ishpeming
John McWhinney Treble	Detroit
Sidney Beach Tremble	Ann Arbor
Emery Alfred Trempe	Sault Ste. Marie
Carl William Trempf	Toledo, Ohio
Victor Elmer Trescott	Livonia, N. Y.
Charles Ray Trickey	Highland Park
George Arthur Triplett	Rome City, Ind.

Arthur Edward Trippensee	Albion, N. Y.
Franklin LeVern Troost	Ann Arbor
George Wilbur Troost	Niles
Theodore Louis Trost	Ann Arbor
Robert Chester Trotter	Spring Lake
Esther Louise Trout	Detroit
Gladys Muns Trowbridge	Oak Park, Ill.
Harold Preston Troy	Olympia, Wash.
James John Trudell	Detroit
Raymond Trudgeon	Wakefield
Alice Margaret True	Port Clinton, Ohio
Walter James Truettner	Bessemer
Clarence Anton Trump	Minneapolis, Minn.
Arthur Russell Truscott	Hancock
Geraldine Shirley Truscott	St. Joseph
Yan To Tsang	Canton, China
Clara Zok-Yoen Tsao	Shanghai, China
Anthony Carter Tucker	Concord
Percy Tucker	Flat River, Mo.
Vida Tucker	Flat River, Mo.
Walter Witt Tufford	Detroit
Marion Morris Tufts	Detroit
Ruth Agnes Tulloh	Rose City
Max Browning Tunncliffe	Ann Arbor
Thomas Cranage Tupper	Bay City
Phillis Alice Turnbull	Sarnia, Ont.
Arthur Ray Turner, m	Ann Arbor
Edward Markham Turner	St. Louis, Mo.
Eleanor Frances Turner	Cleveland, Ohio
Gertrude Emily Turner	Tecumseh
Helen Platt Turner	Ann Arbor
Leo Cadmus Turner	Sweetwater, Okla.
Louise Elisabeth Turner	Lyons, Colo.
Esther Louise Tuttle	Detroit
Lynn Joel Tuttle, Jr.	Des Moines, Iowa
Warren Wiseman Tuttle	St. Paul, Minn.
Alice Elizabeth Twamley	Detroit
Amos Tweeden, Jr.	Fargo, N. Dak.
Clarence Henry Twining	Midland
Dorothy Lucile Tyler	Lansing
Esther Laura Uddenberg	Skaull
Agnes Margaret Ulberg	Ann Arbor
Joseph Ullman	Cincinnati, Ohio
Robert Adolph Ullman	Buffalo, N. Y.
William Emery Ullman	Elmhurst, Ill.
Marcus Franz Ullrich	Mount Clemens
James Adam Ulmer	Bucyrus, Ohio

Myrl Guy Underwood	Ann Arbor
Marjory Helen Unger	Iron Mountain
Elizabeth Norine Upham	Saline
Everett Gifford Upjohn	East Orange, N. J.
Charles Keith Uren	Crystal Falls
Irwin Charles Uteritz	Oak Park, Ill.
James Nolan Vail	Chicago, Ill.
George Edward Van	Detroit
Lyman Warner VanAlstine	Byron
Irma Priscilla VanBaalen	Detroit
Charlotte Mary VanBuren	Sturgis
Ione Elizabeth VanBuren	Detroit
Gordon Dewitt VanCamp	Pontiac
William Alton Vance	Nashville
Blanche Vanderschuur	Grand Rapids
Alice Germaine Vander-Horst	Kalamazoo
Edward Reece VanDervoort	Lansing
Marion Maurice VanEvery	Petoskey
Paul Norton VanHee	Detroit
Gordon VanLoan	Chicago, Ill.
Earl Russell VanLuven	Erie, Pa.
Frank John Lewis VanNatta	Erie, Pa.
Marion Elizabeth VanNess	Chicago, Ill.
Clair William VanPatten	Sharon, Pa.
Max Morton VanSandt	Oklahoma City, Okla.
Frank VanSchoick	Ann Arbor
Lolah Ellen VanSickle	Ann Arbor
Anna Jenness VanTuyl	Ann Arbor
Mary Curry VanTuyl	Ann Arbor
Elizabeth Maude VanValkenburgh	Northville
Lee Smith VanWagoner	Oxford
Hazel Mae VanWinkle	Ann Arbor
Daniel VanWoerkom	Grand Haven
Ellen VanZandt	Dallas, Tex.
Virginia Louise VanZandt	Detroit
Laurent Kimball Varnum	Ludington
Robert Otto Varnum	Benton Ridge, Ohio
John Louis Varriano	Jersey City, N. J.
Edwin Phelps Vary	Battle Creek
Joseph Adolph Vaselak	Bessemer
Orville VanKirk Vaughan	Detroit
Arthur Flavian deVaux	Saginaw
Theodore Arthur Veenstra	Holton
Olga Kristeen Verdellin	Minneapolis, Minn.
Eleanor Verdier	Grand Rapids
John Richard Verduin	Grand Haven
John William VerDuin	Grand Haven

Marcellus Verhoek	Grand Rapids
Ruth M. Vermilyea	Ann Arbor
Richard Dirk Ver Veer	Grand Rapids
Mary Ruth Vial	Ann Arbor
Henry Arthur Vick	Toledo, Ohio
James Allen Vickery	Bellevue, Ohio
Bernice Kathleen Vincent	Detroit
Blanche Issabella Vincent	Ann Arbor
Margaret Vining	Wayne
Madelyn Mary Vinopal	Youngstown, Ohio
Howard August Visel	Bronson
Alice Lucile Vliet	Birmingham
David Luther Vliet	Clarkston
Emil Voelker	Detroit
Sidney Leon Vogel, m	New York, N. Y.
Anna Bell Voght	Marshall
Vieta Louise Voght	Marshall
Frederick Joseph Vogt	Grand Rapids
Joseph Sexton Vogt	Grand Rapids
David Cooper Vokes	Detroit
Minos John Volicos	Chicago, Ill.
Ernest Robert Vollwiler	Middleville
Henrietta Linda Voorheis	Pontiac
Stanley James Voorheis	Pontiac
Leola Grace Vore	Ann Arbor
Daniel Meyer Vos	Ferrysburg
Leon George Vosburg	Owosso
Vera Genevieve Vreeland	Kalamazoo
Myrtle Dale Vrooman	Howell
Arthur Faulkner Vyse, Jr.	Chicago, Ill.
John Quentin Waddell	St. Clair
Jason Lloyd Wade	Chrisman, Ill.
Esther Marion Wadsworth	Otsego
Albert Paul Wagner	Lockport, Ill.
Beata Catherine Wagner	Monroe
Elizabeth Provost Wagner	Findlay, Ohio
John Francis Wagner	Dearborn
Merry Christine Wagner	Grand Rapids
Milton John Wagner	Dearborn
Philip Marshall Wagner	Ann Arbor
Howard Egger Wahrenbrock	Kansas City, Mo.
Pauline Grant Waite	Ann Arbor
Wallace Clay Waite	Ann Arbor
Cornell Walbridge	Toledo, Ohio
Charles Kincheloe Walden	Joplin, Mo.
Dorothy Freeman Waldo	Riverside, Ill.
Clarke Hamilton Wales	Oak Park, Ill.



Ross Edgar Wales	Youngstown, Ohio
Charles Rudolph Walgreen, Jr.	Chicago, Ill.
Raymond Charles Walk	Detroit
Charles Merwin Walker	Bronson
Frances Brennan Walker	Detroit
Lucilla Asbury Walker	Ashland, Wis.
Marion Walker	Detroit
Otis Frederick Walker	Lakewood, Ohio
William Tidd Walker	Detroit
Elroy Baker Wallace	Fowlerville
Herbert Charles Wallace	Saginaw
Mary Juanita Wallace	Hart
Ned Dirlam Wallace	Highland Park
William Carlyle Wallace	Cassopolis
Carroll Duane Waller	Des Moines, Iowa
Edward Frank Wallich	Detroit
Vera Janice Wallington	Ypsilanti
Vera Mae Wallis	Caro
Gilbert Norman Walper	Toledo, Ohio
Sally Walser	Ann Arbor
Gladys Lucille Walsh	Ann Arbor
Isabelle Agnes Walsh	Detroit
Harland Guy Walter	Clarkston
William Joseph Walthour	Scottsdale, Pa.
Laverne William Waltman	Peru, Ill.
William Robert Walton	Mishawaka, Ind.
Daniel Conrad Walz	Ann Arbor
Elma Margaret Walz	Ann Arbor
Margaret Lucia Walz	Cleveland, Ohio
William Clare Walz	Ann Arbor
Cole Austin Ward	Big Rapids
Francis Candee Ward	Big Rapids
Ila Matilda Ward	Gregory
Lelia Maud Ward	Harbor Springs
Matthew Joseph Ward	Lakewood, Ohio
Charlotte Louise Wardell	Detroit
Dorolese Franceska Hurlburt Wardwell	Ann Arbor
Archie Dean Waring	Tecumseh
Beatrice Lucille Warmbier	Wyandotte
Irving Jacob Warmolts	Ann Arbor
Adele Mildred Warner	Ann Arbor
Edna Mary Warner	Ann Arbor
Katherine Lee Warner	Pellston
Mavis LeClaire Warner	Detroit
Ralph Parsons Warner	Ann Arbor
Ruth Lucille Warner	Ocala, Fla.
Charles Ford Warren	Brooklyn, N. Y.
John Cushing Warren	Dowagiac
Russell Edward Warren	Spearfish, S. Dak.

Truman Connor Warren	Tyler, Tex.
William Ernest Warren	Alamogordo, N. Mex.
William Alfred Warrich	Flint
Mary Ellen Warriner	Mount Pleasant
Aldred Scott Warthin, Jr.	Ann Arbor
Robert Leonidas Washburn	Milan, Ohio
Anthony Vincent Washkewich, <i>l</i>	Newark, N. J.
Marian Elaine Wassink	Sunfield
Frederick Henry Wassman	Bellaire, Ohio
Thornton Edward Waterfall	Detroit
Sabina Waterfield	Ann Arbor
Lois Louise Waterman	Grand Rapids
Merwin Howe Waterman	Jackson
Robert Aydelotte Waterman	Ann Arbor
George William Waters	Bessemer
Nelson James Waters	Paw Paw
Isabel Prime Waterworth	Detroit
George Samuel Watkins	Ann Arbor
†Ralph Nelson Watkins, <i>m</i>	Milford
Benjamin Frankland Watson, <i>l</i>	Ann Arbor
Bernard Alec Watson	Three Oaks
Frances Lee Watson	Celina, Ohio
Monroe Armstrong Watson	Cortland, N. Y.
Samuel Tyler Watson	Reading
William Truesdale Watson	Detroit
Ralph Emerson Watt	Detroit
Edward Sayle Watterson	Dayton, Ohio
MacEachern Watterworth	Port Huron
John Beverly Watts	Owosso
Raymond Turlay Way	Chicago, Ill.
Edward Eugene Weadock, <i>l</i>	Saginaw
James Joseph Weadock	Lima, Ohio
Robert Emmet Weadock	Saginaw
Frank Parks Weaver	Greensburg, Pa.
Ella Grace Webb	Paw Paw
Lawrence A. Webb	Detroit
Byron Meredith Webber	Proctor, Minn.
Don George Webber	Chicago, Ill.
Hermin Paul Webbink	Owosso
Alda Mabel Weber	Lakewood, Ohio
Charles Anton Weber	Hanover, Pa.
Edith Janice Weber	Cleveland, Ohio
Marjorie Hamilton Weber	Detroit
Mahlon Ingersoll Webster	Corning, N. Y.
Gerald Bradley Wedel	Niles
Rolland William Weed	Ann Arbor
Josephine Weger	Lawrenceville, Ill.
Albert Ernest Wegerle	Pretoria, South Africa
Robert Samuel Weideman, Jr.	Menominee

Joseph Hubert Weiden	Grand Rapids
Helen Mary Weidler	South Bend, Ind.
Irma Katherine Weidman	Ann Arbor
Louis Arthur Weil, Jr.	Port Huron
Maurice Kahn Weil	Montgomery, Ala.
Max Donald Weil	Cincinnati, Ohio
Richard S. Weil	Rochester, N. Y.
John Lloyd Weiler	Romeo
Josephine Marie Weiler	Romeo
Dorothy Gertrude Weimer	St. Albans, W. Va.
Ernest Weinberg	Cleveland, Ohio
Julius Weinberg	Dunkirk, N. Y.
Milton Weinberger	Mount Clemens
Carl Andrew Weinman, I	Steubenville, Ohio
Edwin Lowell Weir	Indianapolis, Ind.
Margaret Elizabeth Weir	Indianapolis, Ind.
Will Henry Weise	Davenport, Iowa
Joseph M. Weiss, Jr.	Highland Park
Aaron Weiswasser	Detroit
George Carl Weitzel	Royal Oak
Gertrude Maria Welch	Owosso
Howard Baird Welch	Windsor, Ont.
Murielle Mary Welch	Kalamazoo
Orace Oakel Welden	Evart
Ovid Delany Welden	Ann Arbor
Chester Nelson Weldon	Grand Rapids
Richard Gordon Weldon	New Rochelle, N. Y.
Marvin Jerome Welfeld	Chicago, Ill.
Alvin Oscar Weller	South Lyon
Arthur Eugene Welling	Grand Haven
Alexander Charles Wellman	Highland Park
John Morris Wellman	Jamestown, N. Y.
Lyndon Nathan Wells	Ann Arbor
Marion Etta Wells	Detroit
Mason Lindsay Wells	Benton Harbor
Roy Frederick Wells	Athens
Marion Elizabeth Welsh	Central City, Nebr.
Mildred Myra Welsh	Detroit
John Justin Wentworth	Bay City
David Maurice Wepman	Grand Rapids
Stewart Alfred Werback	Highland Park
Jessie May Werner	Greenville
Frank Leon Wertheimer	Pittsburgh, Pa.
Bert Frederick Wertman	Buffalo, N. Y.
Gerald Marion Wertz	Knightstown, Ind.
Leslie John Wessinger	Ann Arbor
Sheldon Elwood Westerman	Ann Arbor
Richard Burchnall Westnedge	Kalamazoo
Harriett Lucile Weston	Ann Arbor

Louis Arthur Weston	Detroit
Herbert Julius Wettlaufer	Saginaw
Lillian Wetzel	Detroit
Miriam Wetzel	Detroit
Samuel Musser Wetzel	Windsor, Ont.
Fred Charles Weyher	Detroit
Frances Adelaide Whalen	Battle Creek
Mary Ann Whalen	Grand Rapids
Thomas Blackburn Wheatley	Cincinnati, Ohio
Walter John Wheeler	Detroit
Anna Frances Wheeler	Ionia
Charles Desmond Wheeler	Buffalo, N. Y.
Dorothy Wheeler	Saginaw
Virginia Wheeler	Buechel, Ky.
Joseph Francis Whinery	Grand Rapids
Chandler Henry Whipple	Grass Lake
Mary Louise Whitacre	Canton, Ohio
Thaddeus Allan Whitaker	Passaic, N. J.
Barbara Elizabeth Whitcher	Jackson
†Carl Louis Witchurch, g	Centralia, Ill.
Marshall Maurice Whitcomb	Marshall
Alden Todd White	Ann Arbor
Charles Floyd White	Glencoe, Ill.
Bradford Georgia White	Blissfield
Esther Karn White	Ann Arbor
Jane Louise White	Lapeer
Kenneth White	Saginaw
Kirk Henry White	Lapeer
Margaret Bourke White	Cleveland, Ohio
Mark Theodore White	Bay City
Virginia Villiers White	Boyne City
William Page White	Muskegon
William Thompson White	Fort Wayne, Ind.
Leston Snell Whitehead	Owosso
Walter Kellogg Whitehead	Detroit
Donald Stuart Whitman	Fenton
Lavern Gonne Whitney	Highland
Douglas Monroe Whittlemore	Ann Arbor
Ruth Whittier	Pawtucket, R. I.
George Heman Whitworth	Grand Rapids
John Arthur Whitworth	Grand Rapids
Hans Arvid Wicklund	Watervliet
Waldemar John Axel Wickman	Ironwood
Paul Burnette Wicks	Martin
Miriam Joy Wicksall	South Haven
Paul Hubert Widger	Cortland, N. Y.
Evelyn Gertrude Widman	Detroit
Edward Theobald Widmann	Johnstown, Pa.
Norman Roland Wiedmayer	Saline

Thelma Elizabeth Wiegard	Detroit
Gordon d'Orsay Wier	Ann Arbor
Kenneth Gordon Wigle	Detroit
Charles William Wilbur	Kalamazoo
Alice Wilcox	Chicago, Ill.
Charles Lonson Wilcox	Northville
Erwin Hildreth Wilcox	Flushing
Frank Pomeroy Wilcox, Jr.	Detroit
Leland Stanford Wilcox	Columbia City, Ind.
Merrill Clark Wilcox	Jamestown, N. Y.
Herbert Charles Wiley	Ottawa, Ill.
Friedel Charles Wilkening	Unionville
Robert Weymouth Wilkins, m	Battle Creek
Frank Hayes Willard	Grand Rapids
Edward Morris Willems	Rochester, N. Y.
Paul Cook Willet	Lackawanna, N. Y.
Ward Lewis Willet	Lackawanna, N. Y.
Absalom Hilliard Williams, l	Huron, Ind.
Alice Winslow Williams	Ann Arbor
Allan Orville Williams	Chicago, Ill.
Bernice Williams	Highland Park
Dorothy Evelyn Williams	San Francisco, Calif.
Edward Louis Williams	Hubbell
Edwin James Williams	Niagara Falls, N. Y.
George Henion Williams	Ann Arbor
Homer Hamilton Williams	Youngstown, Ohio
Howard Edmond Williams	Salt Lake City, Utah
Hubert Carrol Williams	Delevan, N. Y.
John Russell Williams	Ann Arbor
Julien Taintor Williams	Dunkirk, N. Y.
Kenneth Daniell Williams	Fort Wayne, Ind.
Mary Kay Williams	Ann Arbor
Mary Ruth Williams	Wauseon, Ohio
Robert Judson Williams	Muskegon
Seward Reynolds Williams	Lorain, Ohio
Wilfred Hugh Williams	Trenton
Frederick Belford Williamson	Ypsilanti
Thomas Fayette Williamson	Birmingham
Hudson Day Willse	Westfield, N. Y.
Kathryn Wilding Willson	Fort Wayne, Ind.
Leroy Howard Willson	Shelby
Earle Charles Wilmore	La Grange, Ill.
Francis Ezra Wilmot	Gladwin
George Webster Wilmot	Chicago, Ill.
Alice Bernice Wilson	Groveland, N. Y.
Andrew Davis Wilson	Detroit
Angelene Graetel Wilson	Ann Arbor
Donald Darrow Wilson	Little Valley, N. Y.
Gaylord Byron Wilson	Milwaukee, Wis.

George Albert Wilson	Escanaba
Helen Wilson	Ann Arbor
John Humphrey Wilson	Hammond, Ind.
Julia Faucher Wilson	Ann Arbor
Kathryn Schirra Wilson	Ann Arbor
Leland Keith Wilson	New Castle, Pa.
Lucy Margaret Wilson	Grand Rapids
Margaret MacDonald Wilson	Detroit
†Pauline Elizabeth Wilson, <i>ed</i>	Detroit
Robert James Wilson	Grand Rapids
Ruth Irene Wilson	Morristown, N. J.
Steven Francis Wilson	Jackson, Tenn.
Sydney James Wilson	Detroit
Winnie Merle Wilson	Battle Creek
William Whitney Wilson	Princeton, Ill.
John Russell Wilt	Yale
Hazel Jean Wiltse	Flint
Clarice Emma Winans	Chelsea
Donald Closson Winans	Detroit
Edgar Bliss Winchell	Ann Arbor
William Fenton Winchell	Aurora, Ill.
Myron Winegarden	Flint
Donald Bradford Wines	Howell
Irene Forgy Wines	Ann Arbor
Charles Glenn Winger	Battle Creek
Wilbur Henry Winkelhaus	Ann Arbor
Alexander Woodward Winkler	Ann Arbor
Lyell Burnard Winkler	Boyne City
Ruth Winkley	Schenectady, N. Y.
Margaret Anne Winkworth	Detroit
Florence Elizabeth Winn	Lake Grove, L. I.
Floyd Victor Winner	Perrysville, Pa.
Charles Ira Winograd	Nashua, N. H.
Dorothy Holmes Winslow	Grand Rapids
Ilah Evelyn Winter	Kalamazoo
Robert Carlton Moser Winter	Grand Rapids
Mary Helen Meader Winters	Ann Arbor
Robert Kirby Winters	Ann Arbor
Carolyn Wise	Alexandria, Ind.
†George Wilton Wise, <i>ed</i>	Birmingham, Ala.
Harriette Lucille Wise	Van Wert, Ohio
Herman Wise	Detroit
Frieda Hermine Wishropp	Paola, Kans.
William Doric Wismer	Detroit
Gerald LaRue Witham	Ann Arbor
Walter Edward Witherbee, Jr.	Chicago, Ill.
John Homer Witherspoon	Detroit
Anna Flora Wittenbraker	Evansville, Ind.
Theodore Allan Witter	Canton, Ohio

Lester George Wittman	Detroit
Richard Woellhaf	South Haven
Irving Bancroft Wolchok	Toledo, Ohio
Harry Simon Wolf	Wabash, Ind.
Townsend Harold Wolfe	Ann Arbor
Helen Josephine Wolford	Lansing
Sophie Wolfson	Cleveland, Ohio
George Wolinitz	Bayonne, N. J.
†Louis Wollenberger, <i>ed</i>	Evansville, Ind.
Helen Anna Wolter	Benton Harbor
Albert Wolters	Fremont
Frederick Raymond Wolz	Corning, N. Y.
Kei Kwong Wong	Canton, China
Dorothy May Wood	Moline, Ill.
Gladys A. Wood	Ann Arbor
James Bennett Wood	Buffalo, N. Y.
John Frank Wood	Ann Arbor
Russell Thomas Woodburne	Grand Rapids
John Kenneth Woodbury	Ann Arbor
Richard Curtiss Woodhouse	Ionia
Frank Barnaby Woodruff	Detroit
Montgomery Schuyler Woodruff	Benton Harbor
Gerald Gail Woods	Forest, Ohio
Elizabeth Woodward	Coldwater
Emily Ely Woodward	Fitchburg, Mass.
Kathryn Woodward	Coldwater
†Mary Elizabeth Wooldridge, <i>ed</i>	Belding
Henry Lumsden Woolfenden, Jr.	Detroit
Eleanor Bertha Othelia Wordelmann	Saginaw
Tessa Marguerite Worden	Ann Arbor
Hermett Handy Wortham	Detroit
Eleanor Worthington	South Haven
Mabel Etta Wortman	Kingsley
Margaret Button Wrentmore	Manila, P. I.
Bartholomew Donald Wright	New Rochelle, N. Y.
Beryl Kenneth Wright	Ann Arbor
Edgar Duane Wright	Ann Arbor
Genevieve Elizabeth Wright	Falconer, N. Y.
James McNeill Wright, Jr.	Chicago, Ill.
LaVerne Wright	Battle Creek
Mary Elizabeth Wright	Los Angeles, Calif.
Max Singer Wright, <i>m</i>	Grand Rapids
Norma Corrinne Wright	Detroit
Ralph Elliott Wright	Waynesville, Ohio
Alice Ida Wuerfel	Ann Arbor
Frederick Kirtland Wykes	Grand Rapids
Thomas E. Wyles	Lockport, N. Y.
Dorothy Amelia Wylie	Shelby
Estella Armstrong Wyman	Ann Arbor

Wilbe William Wysong  
 Stanley Gladstone Yaney  
 George Clinton Yates  
 Bernard Yawitz  
 Forrest Irving Yeakey  
 James Clifford Yeakey  
 Harlan Judd Yelland  
 Mary Elsa Yetter  
 Harold Hugh Yokes  
 Dorothy Hester Young  
 Ezra Porter Young  
 Glenn Wilson Young  
 Lloyd Bennett Young, *m*  
 Marquis Victor Young  
 Richard DuBois Young  
 Robert Olin Young  
 Robert Rex Young  
 Smith Gresham Young  
 Walter Carpenter Young  
 Ruth Olga Youngs  
 Wellington John Frederick Youngs  
 Frederick Torrens Yount  
 Harry Yudkoff  
 Thomas Daniel Yutzy  
 John George Zabelka  
 Charles Joseph Zamara  
 Mary Lila Zang  
 Robert Norton Zanville  
 Rosalind Marie Zapf  
 David Philip Zasetsky  
 William Edward Zartman  
 Eola Valencia Zeigen  
 Paul Zeigler  
 Dorothy Mabel Zeigler  
 Karl Fett Zeisler  
 Joseph Francis Zemaitis  
 Irving Zemans  
 Walter Harold Zemke  
 Elizabeth Zentner  
 Francis George Zick  
 Theodore Reuben Zieffle  
 Edna Krause Ziegler  
 †Fred Zierer, *ed*  
 Irving Theodore Zillmer  
 Harry Zimmerman  
 Joseph Glen Zimmerman  
 †Robert Floyd Zimmerman, *ca*  
 Wilford Emile Zinsmeyer  
 Frederic William Ziv

New Lebanon, Ohio  
 Ann Arbor  
 Lead, S. Dak.  
 University City, Mo.  
 Grand Rapids  
 Grand Rapids  
 Escanaba  
 Eau Claire  
 Erie, Pa.  
 Ionia  
 Glenwillard, Pa.  
 Flint  
 Detroit  
 Decatur  
 Detroit  
 Keuka, N. Y.  
 Gary, Ind.  
 Lansing  
 Grand Rapids  
 Ann Arbor  
 Ann Arbor  
 Detroit  
 Detroit  
 Ann Arbor  
 St. Johns  
 Grand Rapids  
 Battle Creek  
 Toledo, Ohio  
 Detroit  
 Holyoke, Mass.  
 Freeport, Ill.  
 Ypsilanti  
 Detroit  
 Pittsburgh, Pa.  
 Ypsilanti  
 Grand Rapids  
 Chicago, Ill.  
 Ann Arbor  
 Oshkosh, Wis.  
 Grass Lake  
 Ann Arbor  
 Philadelphia, Pa.  
 Detroit  
 Lakewood, Ohio  
 Washington Court House, Ohio  
 Traverse City  
 Plainwell  
 Dearborn  
 Cincinnati, Ohio



Howard Sylvester Zoll  
 Howell Zook  
 Arnold Henry Zuelch

Constantine  
 Ann Arbor  
 Saginaw

#### EXTRA MURAL CLASSES

\* The following students are enrolled in regular University classes meeting in neighboring cities:

Raymond LaDue Abbott	Lansing
Henry M. Abramovitz	Detroit
Saul Mayer Abramovitch	Detroit
Hazel Cecelia Adair	Wyandotte
Marjorie Iotha Adams	Detroit
Margaret Adomeit	Detroit
Mary Agnes Ahearne	Flint
Hugh George Aldrich	Lansing
Mary Loretta Alexander	Detroit
Helen E. Allen	Detroit
Estella Hill Alpern	Detroit
Mary Alvina	Wyandotte
Elisabeth Gurnee Anderson	Detroit
Jennie Nina Eugenia Anderson	Flint
Lorna June Anderson	Grand Rapids
Lydia Fredericka Anderson	Flint
Margaret Georgia Anderson	Detroit
Margaret Marie Anderson	Lansing
Edna Irene Andrews	Flint
Esther Loretta Anhut	Detroit
David Ralph Argue	Windsor, Ont.
Irene Evelyn Armstrong	Detroit
Louise Armstrong	Flint
Donald Edmund Ashworth	Wyandotte
Olive Elizabeth Austin	Detroit
Lillian Esther Avery	Highland Park
Martha Suezette Aylesworth	Detroit
Eugenie Blake Babcock	Grand Rapids
Rose E. Backus	Lansing
Lenore Bader	Flint
Minnie Marie Baier	Detroit
LaVerne May Bailey	Grand Rapids

\* The students in this list are enrolled in classes taught by members of the Faculty of the College of Literature, Science, and the Arts as sections of courses also offered by them in Ann Arbor. The requirements as to attendance, work, and examinations are the same as for students in residence. Students satisfactorily completing such courses receive, as in the Summer Session, credit certificates entitling them upon matriculation to full credit for these courses.

An italic letter following the names signifies that the student is also enrolled in another School or College of the University during the year 1923-1924 as follows. a, College of Literature, Science, and the Arts.

Pearl Loraine Henry Bailey	Flint
Iva Cornell Baird	Detroit
Margaret Elizabeth Baird	Flint
Mary Elizabeth Baker	Grand Rapids
Hazel Mae Balch	Grand Rapids
Ruth Helena Balch	Lansing
Rachel Fraser Bale	Grand Rapids
Cora Ann Ballou	Detroit
Katherine Margaret Banning	Detroit
Lloyd DeLoss Barber	Flint
Helen Mildred Barnhart	Lansing
Grace Edna Barns	Detroit
Louise Elizabeth Barr	Grand Rapids
Zilla B. Bartlett	Detroit
Gale Marsh Barton	Grand Rapids
Grace Nilsson Bateman	Detroit
Helen J. Bates	Wyandotte
Caroline Bauman	Grand Rapids
Watson Beach	Detroit
Mildred Farley Beaman	Detroit
†Prudence Emly Beasley, <i>ed</i>	Detroit
Lulu May Becker	Detroit
Ralph Adam Becker	Detroit
Alma Mary Beechie	Detroit
Elsie Gertrude Benjamin	Lansing
Lillian Miller Benjamin	Wyandotte
Anna Jane Bennett	Flint
Margaret Douglass Bennett	Jackson
Gilion Thomas Benson	Detroit
Helena Augusta Bentler	Flint
Albertine Mary Bernard	Battle Creek
Margaret Best	Detroit
Louise Genevieve Biddle	Grand Rapids
Henrietta Margaretha Bielow	Detroit
Lloyd W. Biggs	Detroit
Ruth Landers Bills	Lansing
Phyllis Bernice Bindley	Detroit
Frank Bingham	Flint
Marguerite Elizabeth Binkley	Detroit
Edward Jacob Bird	Detroit
Edith Winifred Blackford	Detroit
Ruth Blodgett	Detroit
Irene Bloss	Battle Creek
Annie Boland	Grand Rapids
Lou Bolster	Lansing
Florence Emily Bonine	Lansing
Ardah E. Borden	Flint
Flossie Madalyn Bosworth	Lansing
Albert Rowland Botten	Detroit

Gertrude Bouman	Grand Rapids
Ora Elsie Boville	Detroit
Blanche Eloise Bowen	Lansing
Ethel Bowman	Flint
Harry Hadley Boyle	Detroit
Irene Emma Boyles	Lansing
Rose C. Boyd	Detroit
Maude Boynton	Grand Rapids
Frederick William Bradley	Flint
Ruby Brandon	Grand Rapids
Esther Braude	Detroit
Rose Braude	Detroit
Ernest Otto Braun	Detroit
Carolina Bray	Lansing
Julia Loretta Brennan	Detroit
Inell Roy Brewer	Detroit
May Chambers Brewster	Lansing
Everette Warren Bridge	Detroit
Gertrude Baxter Brock	Flint
Lulu Eugenia Brockway	Flint
Minnie Brooks	Detroit
Harold Carleton Brown	Detroit
Jacob Sylvester Brown	Detroit
Nathan Alan Brown	Detroit
Elizabeth Virginia Browne	Detroit
Esther Belle Browne	Flint
Ada R. Brownell	Ferndale
Elfrieda Brugger	Detroit
Eloise Brundage	Flint
Edna R. Buchan	Flint
Lena Ellen Buchele	Detroit
Marian Jeanette Buckrell	Detroit
Fred Hayden Burkholder	Lansing
Belle Bush	Detroit
Margaret Cecilia Byrne	Flint
Cora June Cady	Grand Rapids
Charlotte Wait Calkins	Grand Rapids
Violet Leone Call	Mason
Clare Constance Cameron	Detroit
Margaret Wetzel Cameron	Detroit
Marjorie Carol Cameron	Detroit
Carolyn Moore Campbell	Flint
Lula Merlace Canan	Battle Creek
Marjory Winifred Card	Detroit
Arthur Leon Carlson	Flint
Helen Elizabeth Carr	Detroit
Marvin St. Clair Carr	Detroit
Beulah Draper Carter	Detroit
Hazel Cary	Detroit

Agnes Case	Detroit
Faye Bertha Cashdan	Detroit
Fred William Cederleaf	Flint
Helen Lillian Champion	Detroit
Willard Steele Chapman	Lansing
Hazel Belle Chawn	Flint
†Grover Cleveland Chostner, <i>v.ed</i>	Detroit
Kathryn Bowen Chrouch	Lansing
Bernice Mallory Claflin	Lansing
Mary Arbutus Clappen	Detroit
Mary Clarita	Wyandotte
Cora S. Clack	Grand Rapids
Lillian May Clark	Lansing
Edwin Claus	Redford
Kathryn Charlotte Coakley	Detroit
Jessie Luella Coates	Lansing
Vivien M. Cogley	Detroit
Helen Colborne	Detroit
Mable Susan Colby	Flint
Lida Clark Coldren	Northville
Andries Miller Cole	Detroit
Gertrude Cole	Lansing
James Alfred Coleman	Flint
Helen Spiece Collings	Detroit
Pearl Velma Collins	Detroit
Agnes Gertrude Connolly	Detroit
L. Lenore Conover	Detroit
Edna Mae Cook	Battle Creek
Irene Harriett Cook	Flint
Marion Inez Cook	Lansing
Olive Rose Cook	Detroit
Peter Cook	Flint
Clarence Sidney Cooke	Detroit
Evangelisa Cooney	Lansing
Leo James Cooper	Detroit
Frances P. Copeland	Detroit
Anne Byrnes Corcoran	Lansing
David Leroy Cosens	Flint
Alphonzo M. Cotter	Detroit
Edythe Frances Coulson	Detroit
Euna Ronabeck Cowan	Grand Rapids
Esther Eloise Cowley	Detroit
Josephine Crabbs	Lansing
Leroy Vernon Cram	Flint
Vesta Mildred Cramer	Detroit
Florence Roberta Cressman	Ferndale
Ruth Crossmon	Flint
Edmond Stanley Cudna	Detroit
Mary Wenger Curtis	Detroit

Ruby Strayer Curtis	Lansing
Astrid Charlotte Dahlberg	Detroit
Florence Ione Dale	Royal Oak
Carl Wilmot Dalrymple	Lansing
Lottie Moor Daniels	Detroit
Fred Sylvester Darling	Grand Rapids
Anne Ruth Davidow	Detroit
Bessie Tohill Davies	Ecorse
Beatrice Jane Davis	Battle Creek
Doris Dexter Davis	Battle Creek
Marie Grace Davis	Flint
Marjorie Minerva Davis	Detroit
Mildred Rachel Davis	Lansing
Marie Lucile deDreu	Grand Rapids
Bernice Evelyn DeGraw	Detroit
Marie Dell	Lansing
Grace Magdalen DeLude	Detroit
James Herbert Dempster	Detroit
Albert Deninger	Flint
Margaret Frances Dennison	Detroit
Helen Elaine Dentsch	Detroit
Barbara Dickinson	Detroit
Alta Myrtle Dierking	Detroit
Blanche Maybelle Dill	Lansing
Fred Charles Dobbertin	Flint
Daphne Winifred Dodd	Lansing
Martha Ellen Dolan	Lansing
Sophia K. Doll	Detroit
Jean Donnachie	Detroit
Anna Patricia Downs	Detroit
Agnes Doyle	Detroit
Alice Clare Doyle	Grand Rapids
Lilla Virginia Doyle	Detroit
Lena Maude Drake	Lansing
Kathleen Lucy Drouillard	Ford, Ont.
Hilda Louise Duncan	Flint
Julia Madeline Dwyer	Detroit
Katharine Gertrude Dwyer	Detroit
Helen Kane Dyball	Flint
Susie Belle Eaman	Detroit
† Evelyn Elizabeth Eastman, <i>ed, g</i>	Detroit
Blanche Rolfe Edison	Detroit
Eugene Bradley Elliott	Lansing
Lucy Elvira Elliott	Troy
Tessa Irene Elliott	Lansing
Wilma Gardner Elliott	Lansing
Robert Bruce Engle	Lansing
Alfred George Epps	Grand Rapids
Clifford Soend Eriksen	Detroit

Gustaf Rudolph Eriksson	Detroit
Joseph Estrin	Detroit
Eva Helen Evans	Lansing
Girard Henry Everett	Detroit
Millie Ewart	Detroit
Marguerite Marie Farmer	Flint
Beatrice Carlotta Farr	Detroit
Helen Virginia Farr	Detroit
Catharine Clarke Ferguson	Detroit
Ellen Cecilia Finn	Grand Rapids
Elsie Joseph Fisher	Lansing
Helen F. Fisher	Battle Creek
Tilla Irene Fisk	Lansing
Catherine Anys'a FitzGerald	Detroit
Frieda Foess	Detroit
Isabelle Mary Francis	Battle Creek
Lenore Anne Francis	Battle Creek
Minnie Franke	Detroit
Wayne Frary	Detroit
†Janette Elizabeth Fraser, a	Detroit
Herman Willard Freese	Flint
Kenneth Frostic	Wyandotte
Eleanor Acheson Fuller	Atlas
Hilda Marie Furman	Detroit
Gayla Annette Gamble	Flint
George Forbes Ganson	Detroit
Harry Eben Gardner	Lansing
Katherine Anna Garrett	Detroit
Emma Mary Gartner	Wyandotte
Beulah Katherine Gay	Detroit
Everton John Gibb	Detroit
Charlotte Anna Gierst	Grand Rapids
Ethel Irene Giffin	Redford
Lilian Gilbert	Detroit
Auda Cleo Gill	Lansing
Bers'ie May Gill	Lansing
Elizabeth Deborah Gillespie	Detroit
Robert Mills Gillespie	Lansing
Winnifred Minerva Gleiss	Detroit
Winifred McKee Goble	Battle Creek
Edythe Mae Gonne	Detroit
Lily Eliza Goodhew	Detroit
Florence A. Goodhue	Lansing
Arla Gould	Lansing
Harry Homer Gragg	Detroit
Genevieve Gene Graham	Ecorse
James Graham	Detroit
May Frances Graham	Detroit
Mae Margaret Grahek	Detroit

Mabel Marie Grant	Detroit
Minnie Gow Green	Royal Oak
Mary Rose Greiner	Jackson
Mary Cecilia Griffin	Detroit
Grace Elizabeth Griffiths	Detroit
Frances Mary Griswold	Grand Rapids
Elizebeth Cecilia Grobbel	Detroit
Elene Veryl Groff	Detroit
Florence Ads Grogan	Detroit
Harriet Adeld Grove	Detroit
M. Tenta Gussinger	Detroit
Leonore Catherine Guerin	Detroit
Mabelle Eugenia Guilloz	Detroit
Mark Emmet Gunville	Detroit
Lillian Marie Gwinn	Detroit
Mabel Isabel Hadley	Detroit
Carolyn Slaybaugh Hagerty	Detroit
Pauline Naomia Hall	Detroit
Altha Winifred Hallock	Flint
Bessie Althena Halsted	Detroit
Mildred Hanel	River Rouge
Eunice Margaret Hanlan	Detroit
Zoa Erma Fuller Harcourt	Lansing
John Russell Hardy	Detroit
Gertrude May Osburn Harmer	Grand Rapids
†Myrtie Mae Harriman, <i>ed</i>	Detroit
Anna Laura Harris	Flint
Elizabeth Kerr Harris	Battle Creek
Thomas Randolph Harrison	Detroit
Henrietta Inez Hart	Detroit
Mabel Maud Hartshorn	Lansing
Carolyn Keltie Hartwell	Flint
Edith Louisa Cowles Haughey	Battle Creek
Myrtle Mae Hawkins	Detroit
Irma Hawley	Lansing
Florence Mae Hayes	Detroit
Louise Chase Hayes	Lansing
Winifred Hayes	Detroit
Matilda Elizabeth Hazelwood	Detroit
Nora Healy	Detroit
Marjorie Louise Heath	Royal Oak
George Frederick Heffelbower	Flint
Perry D. Helser	Flint
Bessie Ethel Ivory Hemingway	Flint
Marie Ann Hemmen	Detroit
Dena Henderson	Detroit
Margaret Henderson	Flint
Alice Hennessy	Lansing
Daniel William Hickok	Detroit

Jennie Earngey Hill	Detroit
Marion Marguerite Hill	New Baltimore
Harriet Amelia Hird	Detroit
Loranie Fred Hire	Wyandotte
Harry C. Hoagland	Flint
Elizabeth Loretta Hobbs	Lansing
Florence Hobt	Detroit
Olive Hocking	Detroit
Blanche Wolcott Hogan	Lansing
Katharine Lenore Holden	Detroit
Charlie Alvin Holland	Flint
Mary Nicanor Holland	Detroit
Myrtle Holmes	Ferndale
Mabel Elizabeth Holton	Detroit
Margaret Jane Honeywell	Flint
Priscilla Hepworth Hope	Detroit
Eucheria Horgan	Lansing
Nellie Horrigan	Flint
Irma Horst	Detroit
†Aris Van Deusen Horwath, g	Birmingham
Marion Lois Hosner	Detroit
Bertha Maude Houston	Detroit
Fern Howard	Detroit
George Edward Howard	Lansing
Madeline Frances Howe	Flint
Julia M. Hubbard	Detroit
Jessie Arvella Huber	Jackson
Harriet Miriam Huebel	Detroit
Ruth Elizabeth Hughes	Ecorse
Mary Curran Hulbert	Birmingham
Katherine Agnes Hume	Lansing
Beatrice Hunt	Lansing
Vera Eveleen Hunt	Detroit
Minerva Hunter	Ecorse
Florence Mildred Hurd	Detroit
Edna Gillespie Huston	Grand Rapids
Mabel Ione Hutchings	Grand Rapids
Nettie Read Hutchinson	Flint
Esther Kathryn Ide	Detroit
Julia Margaret Ives	Detroit
Beulah St.Clair Jackson	Grand Rapids
Hazel Adell Jackson	Battle Creek
Warren Jackson	Ecorse
Frank A. James	Flint
Ruby Jamieson	Highland Park
Hilary W. Jefferson	Lansing
George Duncan Jeffrey	Detroit
Charles Edward Jennings	Lansing
Marion Luella Jennings	Grand Rapids



Merrie Ellen Jewell	Lansing
Anna Constance Johnson	Detroit
Dorothy M. Johnson	Grand Rapids
Jennie Elizabeth Johnson	Lansing
Lillian Engleton Russell Johnson	Detroit
Mary Jane Johnson	Detroit
Berna Gladys Johnston	Detroit
Emma Johnston	Detroit
Ford Johnston	Grand Rapids
Margaret Muldoon Johnston	Detroit
Maybelle Johnston	Detroit
Blanche Jones	Flint
Emma Harriet Jones	Grand Rapids
Isabelle Vovillia Jones	Flint
Margaret Ruth Jones	Flint
Gertrude Elizabeth Joy	Detroit
Helen Clayton Joyner	Grand Rapids
Freeland Judson	Detroit
Anna Mabel Kantner	Detroit
Katherine Hyde Kedzie	Wyandotte
Florence Lee Keil	Pleasant Ridge Village
Otto Charles Keil	Pleasant Ridge Village
Mary Veronica Kelly	Lansing
Sidney Stiles Kennedy	Lansing
Mary Frances Keough	Detroit
Mary Catherine Kenney	Detroit
Sarah Graham Kerr	Detroit
Besse Lively Ketcham	Detroit
Katherine W. Kieft	Battle Creek
Theresa Elizabeth Kile	Battle Creek
Ann King	Detroit
Edith Ayie King	Jackson
Lowell Lumley King	Flint
Pearl Fletcher Kitchen	Detroit
Alma Eunice Knapp	Detroit
Jessie Elisabeth Knoll	Detroit
Muriel Louise Kortick	Detroit
Hobart McKinley Kraner	Flint
Grace Dolly Krathwohl	Detroit
Martha Ruth Krathwohl	Detroit
Carrie Krell	Battle Creek
Mary Helena Kremmin	Grosse Pointe
Emma Boucher Kurth	Detroit
Roy Jay Kyger	Flint
Bessie Francis Ladd	Detroit
Ruth Lydia Lake	Detroit
Florence Elaine Laley	Flint
Angel Ferguson Lambert	Detroit
Mildred Estella Lambert	Detroit

Irma Hammond Lambertson	Flint
Mary Elizabeth Laming	Flint
Blanche Evelyn Lamoreaux	Grand Rapids
Kathryn Zelma La Peer	Battle Creek
Mary Agnes Larcom	Detroit
Irving H. Larkin	Flint
Jessie Ethel Larson	Flint
Carrie Hannahan Lavin	Detroit
Katharine Harriet Law	Flint
Edith Elizabeth Layer	Jackson
Katharine Carroll Lee	Grand Rapids
Stella Mary Leeson	Detroit
Vera Dixon LeFurge	Detroit
Margaret La Verne Lemke	Battle Creek
†Abigail Nichols Lennox, <i>ed</i>	Detroit
Beatrice Theodora Millar Lent	Detroit
Marion Virginia Lenway	Detroit
Hatty Clara LeSaar	Detroit
Fred Walter Levely	Wyandotte
Bluma Ida Levin	Detroit
Amy Pearl Lewis	Grand Rapids
Helen Louise Lewis	Grand Rapids
Hettie B. Lewis	Flint
Leota Mahan Lieving	Battle Creek
Elizabeth Ligon	Detroit
Gertrude Esther Linsell	Detroit
Mildred Alberta Linton	Detroit
Edna Beatrice Livie	Detroit
William Rees Lloyd	Flint
Alice Edna Lockwood	Detroit
Hazel MacLean Lockwood	Detroit
Alma Marie Lohr	Battle Creek
Elizabeth Smith Long	Detroit
Frank Arthur Long	Lansing
Bert Norton Loomas	Flint
Gilbert Stanley Loomis	Jackson
Harriet Heywood Loomis	Jackson
Mary Ellen Loomis	Flint
Mary Genevieve Loomis	Flint
Arthur Paul Lopshire	Detroit
Clare Rosanne Lorenger	Detroit
Bertha Rowena Losinger	Lansing
Fred E. Lossing	Flint
Emma Marie Lott	Lansing
Esther Catherine Lott	Lansing
Elizabeth Brown Loucks	Detroit
Robert Love	Flint
Mary Constance Ludden	Flint

Vera Blanche Ludlow	Detroit
Mae Hill Luke	Grand Rapids
Frances B. Lyon	Flint
Roy Irvington MacArthur	Flint
Eva Luella McBain	Detroit
Lenora Morehouse McBain	Battle Creek
Louise Abbie McBride	Jackson
Maud Walker McBride	Detroit
Francis Joseph McCabe	Detroit
Mae McCabe	Highland Park
Thomas Alexander McCall	Detroit
Margaret Beattie McClure	Detroit
Mary Elizabeth McCormack	Grand Rapids
Margie Luella McCoy	Wyandotte
Gertrude Isabell McCreery	Detroit
Benjamin Franklin McCuen	River Rouge
Lloyd Stacey McCune	Flint
Catherine Jeanette McDonald	Detroit
Jean MacDougall	Detroit
Kathleen Annette McGee	Detroit
Lydia Augusta McGonigal	Lansing
Naomi Agnes McGovern	Flint
Genevieve Margretta McGreery	Detroit
Isabella L. MacGregor	Detroit
Mary Hanna McHenry	Lansing
Harold Bateman McKale	Lansing
Frances Elizabeth McKelvy	Detroit
Yudah Louise McKenna	Flint
Doris Alberta McKeon	Lansing
May Emily McKibbin	Lansing
Helen Dimies MacLennan	Battle Creek
Thelma Mary McLeod	Detroit
Carl Russell McMillen	Detroit
Melvina Blanche McMullen	Grand Rapids
Myrtle Marion McNamara	Detroit
Hugh David McPhail	Lansing
Anne Marie McQuade	Detroit
Mary Camilla McSweeney	Detroit
William Albert MacWebb	Flint
George Earl Madison	Flint
Mary Althea Maginn	Mt. Morris
Clarence Francis Maguigan	Flint
Allan Robert Malcolmson	Detroit
Jessie Ellen Mann	Battle Creek
Florence Lulu Markhart	Detroit
Lena Marshall	Lansing
Esther Martin	Grand Rapids
Minnie Alice Martin	Jackson

Fredericka Henrietta Martini	Lansing
Anna Martyn	Detroit
Bertha H. Mason	Grand Rapids
Thomas Stanley Massey	Swartz Creek
Mary Justine Masterson	Lansing
Clele Lee Matheison	Royal Oak
John Robert Mattingly	Detroit
Mary Elizabeth Maurer	Flint
Angelo Harry Maybaum	Detroit
Bertha Marcia Mead	Detroit
Emily Coy Mead	Battle Creek
Avrahm Gudahlia Megent	Detroit
Margaret Helen Meister	Detroit
Hilda Agnes Menger	Holt
Merle Lavonne Merritt	Flint
Millie Mae Merritt	Lansing
Ada Elizabeth Mersereau	Detroit
Clarence Edward Meslo	Detroit
Lorna Doone Metcalf	Jackson
Emilie Meyer	Detroit
Glenn Arthur Middleton	Detroit
Leslie Washington Miller	Detroit
Myrna Gertrude Miller	Detroit
Charles James Mills	Detroit
Mary Esther Mills	Grand Rapids
Harriet Milne	Detroit
Mae Carolyn Miner	Detroit
Hazel Blais Minore	Flint
Frances Ryan Mitchell	Flint
Mabel Mitchell	Battle Creek
Elizabeth Nottingham Molitor	Lansing
Stella Dolores Mollno	Wyandotte
Dorothy Fern Monfort	Detroit
Mary Kryan Mooney	Lansing
Martin Ray Moore	Lansing
Phyllis Moore	Detroit
Gladys Faith Morehouse	Detroit
Earle Lee Moreland	Pontiac
Golda Cleone Morford	Lansing
Edna Colwell Morgan	Flint
Samuel Morgan	Flint
Stella Fisher Morris	Detroit
Janet Morrison	Detroit
Charles Edgar Mosher	Lansing
Elbert Lynden Mote	Detroit
Genevieve Elnora Moule	Ferndale
Mae Ethlyn Moyer	Lansing
Lola Woodbury Mulder	Flint

Ruth Mulvena	Detroit
Mary Elizabeth Mulvey	Ecorse
Florence Margaret Mungavin	Detroit
Alice Lilian Munro	Detroit
Jessie Mary Munroe	Ecorse
William Henry Munsell	Detroit
Alice Bertha Murray	Flint
Catherine Murray	Grand Rapids
Jessie Marguerite Myers	Battle Creek
Vivien Mabel Myers	Detroit
Virginia Clara Neal	Detroit
Mary Master Needham	Detroit
Rachel Margaret Neller	Lansing
Gertrude Elizabeth Newbrough	Detroit
Donald Jennings Newth	Detroit
Josephine Nichol	Detroit
Eva Blanche Nichols	Lansing
Naoma Maurine Nichols	Flint
Laura Nicholson	Detroit
Ella E. Nickel	Jackson
Clarice Alberta Nicodem	Detroit
Charles William Nisula	Detroit
Alexander C. Nixon	Detroit
Chester William Norton	Lansing
Irene Hoyt Norton	Lansing
Nellie Mae Nutter	Grand Rapids
Fred W. O'Brien	Flint
Lois Mary O'Connell	Battle Creek
Olive J. Odell	Jackson
Kathryn Isabel O'Dowd	Detroit
Clara Emma Oetjen	Detroit
Madelon Rose O'Hare	Flint
Ethel Lois Olson	Detroit
Jessie Jane Olm	Detroit
Doris O'Rourke	Jackson
Jim J. Orr	Royal Oak
Elizabeth Baxter Owen	Detroit
Mabel Faith Owen	Detroit
Josie Ellen Page	Grand Rapids
Mabel Palmer	Flint
Anastasia Parks	Detroit
Mary Elizabeth Parks	Detroit
Lyman Henry Parr	Flint
Tess Charlotte Parrish	Clawson
Amy Myra Pascoe	Detroit
Grace M. Paton	Lansing
William Ross Pease	Grand Rapids
Anne Albertine Peck	Detroit

Lillian Christine Peek	Flint
Katherine Pellow	Detroit
Mary Belle Perkins	Flint
Helene Gertrude Perrin	Lansing
Dorothy Marie Perron	Detroit
Blanche Jobes Phillips	Detroit
Anna Bertha Plag	Grand Rapids
Henry Oscar Pohrt	Flint
Suzanne Frances Pope	Detroit
Henrietta Josephine Potts	Detroit
Harriet Ellen Pratt	Lansing
Florine Elizabeth Priest	Detroit
Laurie Eloise Proctor	Detroit
Gladys Blanche Proper	Detroit
William James Puffer	Flint
Valora Frances Quinlan	Grand Rapids
Stephen Stanislaw Radecki	Detroit
Edna Kilcline Raiss	Detroit
Robert Stewart Ramage	Flint
Cecil P. Randall	Lansing
Arthur George Rathbone	Detroit
Bertha Amelia Rathbun	Jackson
Anna Jane Rawden	Lansing
Susan Wendell Raymond	Grand Rapids
Florence Grace Raynor	Detroit
Frances Eaton Redner	Battle Creek
Eva Belle Reid	Detroit
Margaret Ardie Reiman	Jackson
Leila Effie Reynolds	Lansing
Myrtle Hamilton Rhodes	Detroit
Vera Belle Ribble	Lansing
Elva Irene Richards	Flint
Rhea A. Richardson	Detroit
Alice Gray Richmond	Detroit
John L. Riegle	Flint
Harry Riseman	Detroit
Marion Hamilton Risley	Battle Creek
Helen Louise Roberts	Detroit
Ruth Stenius Roberts	Detroit
Lulu Belle Robertson	Lansing
Frances Clark Robinson	Detroit
Esca Genevieve Rodger	Highland Park
Elsie Marie Roethke	Detroit
Louise Willamina Roethke	Detroit
Claude Gore Rogers	Ferndale
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 John Albert Benson, Jr.  
 Walter Everette Berger, Jr.  
 John Pinkerton Bernard Ch  
 Allan Berne-Allen, Jr. Ch  
 George Franklin Berneike E  
 Carl Marston Berry M  
 DeLohr Berry E  
 Russell J. Berry E  
 Alphonso Beuthien C

Detroit  
 White Plains, N. Y.  
 Port Huron  
 Wellsville, N. Y.  
 Lake City  
 Miami, Ariz.  
 Ann Arbor  
 Ionia  
 Detroit  
 Bataan, P. I.  
 Flint  
 Calumet  
 Ironwood  
 Muskegon  
 Port Huron  
 Sault Ste. Marie  
 Flint  
 Haverhill, Mass.  
 Wyandotte  
 Jackson  
 Fairport, N. Y.  
 Battle Creek  
 Wai, India  
 Shelton, Conn.  
 Battle Creek  
 Reading, Pa.  
 Chicago, Ill.  
 Grand Rapids  
 Detroit  
 Ann Arbor  
 La Junta, Colo.  
 Ann Arbor  
 Detroit  
 Detroit  
 Ann Arbor  
 Harshaw, Wis.  
 Detroit  
 Coldwater  
 Detroit  
 Detroit  
 Saginaw  
 Ashland, Ky.  
 Glendale, Ohio  
 Great Kills, N. Y.  
 Cleveland, Ohio  
 Ann Arbor  
 Grand Rapids  
 Grand Rapids  
 Lake City

Lawrence Wyllis Bibbins	E	Ypsilanti
Howard King Bidwell	E	South Lyon
Howard Edwin Biggs	Mar	Toledo, Ohio
Howard Mellor Birks	E	Chicago, Ill.
Barton Phelps Bishop	E	Cassopolis
Richard William Bissell		Fredonia, N. Y.
John Wheeler Blackburn		Northville
Norman Hooper Blair		Youngstown, Ohio
Howard Cullen Blake		Galesburg
William Frederic Blake	E	Detroit
Birdsal Edwin Blanchard	M	Bay City
Normand Frank Blase	Mar	Cleveland, Ohio
Cecil William Blashill	C	Ann Arbor
Christopher Edmund Blaydon	Mar	Detroit
Joseph Thomas Blaydon	Aero	Detroit
Maitland Barkelew Bleecker	Aero	Chatham, N. J.
William Arthur Blessed	M	Highland Park
Harold Blinco	M	Grand Mere, Quebec
Ora Galen Blocher	E	Custer
Jonas Louis Block	Ch	Battle Creek
John Edward Blomgren	M	Norway
Albert Bloom	E	Detroit
Frank Blymyer		Wilmette, Ill.
Donald William Boardman	Ch	Kalamazoo
Fredrick Action Boddy	M	Detroit
Rudolph Carl Bodmer		Canonsburg, Pa.
Elmer William Boehmer		Hamburg, N. Y.
Dennis Melbourne Boer	E	Zeeland
Rolland McKay Bogue	E	Cassopolis
George McLeod Bolton	C	Highland Park
William James Bond	M	Ironwood
Leonard Stansell Bonnell	Ch	Dowagiac
Paul Christian Bonnette		Kingfisher, Okla.
Hugo Bonninghausen	E	Detroit
William Edward Boomgaard	E	Grand Haven
Arthur John Boote		Toledo, Ohio
Ainsworth Booth	M	Elmira, N. Y.
Hartger Jonker Borgman	C	Holland
William Martin Borgman, Jr.	E	Detroit
Benjamin Daniel Borodin	C	Vladivostok, Siberia
George Emil Bosserdet	Ch	River Rouge
Carl Meeske Boswell	E	Muskegon
Lyle Raymond Botruff		Jackson
Frederic Avery Bourke		Detroit
Henry Woodford Bousman	E	Louisville, Ky.
†Frank Wallace Boutell, a		Flint
John Alexander Bowen	M	Grand Rapids
Ray Oliver Bowman	Ch	Westernport, Md.
Walter Ernest Bracker	E	Marquette

Clarence Allan Brady M  
 Francis Elmer Brady  
 William Robert Brainard M  
 Ethel Marie Braybrooks Spl.P.T.  
 William McKinley Braybrooks M  
 Nicholas Joseph Brazell Mar  
 Clayton Bourguin Bredt C  
 Herman George Bremenkampf  
 James William Brennan Mar  
 Jack Bressler C  
 Henry Hampton Brewer E  
 Ernest Gottfried Brick Ch  
 Bennie Emanuel Brierton Aero  
 Philip Vaughan Bright, Jr. M  
 Ralph Brink M  
 Merton Manford Brisbin E  
 John D'Auby Briscoe M  
 Daniel Richards Brockett Ch  
 George Robert Broderick  
 Walter Thompson Bromley  
 Charles Wilson Brown Spl.C  
 Clark Hugo Brown M  
 Clement Raphael Brown M  
 Dale Adair Brown Ch  
 Edgar Burr Brown  
 Francis Lorenzo Brown  
 Kenneth Russell Brown E  
 Lewis Merwin Brown E  
 Maurice Everett Brown M  
 Robert Ely Brown C  
 Roy A. Brown C  
 Thomas Moore Brown E  
 Harold William Brownell  
 Fred Allen Bryan  
 Willis Barnhardt Buchbinder M  
 Milton Buchler M  
 Herbert Charles Bucholz E  
 Steve Frank Bucholz Spl.C  
 Pasqual Michael Budge Ch  
 Anthony Budnik  
 Joseph Lawrence Buell  
 Earl Barnett Buffington  
 Charles Martin Anthony Buhl, Jr. M  
 Robert Dunbar Buick M  
 Elmer Bullerdick Spl.C  
 Donald Jickling Bullock M  
 Jack Knighton Bulmer M  
 Edward Christ Bumke M

Grand Rapids  
 Ann Arbor  
 Macomb, Ill.  
 Ann Arbor  
 Ann Arbor  
 Seattle, Wash.  
 Cleveland, Ohio  
 Eureka, Nev.  
 Mount Clemens  
 Brooklyn, N. Y.  
 Detroit  
 Detroit  
 Stuttgart, Ark.  
 Wilmette, Ill.  
 Fremont  
 Ensley, Ala.  
 Pontiac  
 Cambridge, N. Y.  
 La Salle, N. Y.  
 Birmingham  
 Albany, N. Y.  
 Brooklyn, N. Y.  
 Grand Rapids  
 Evart  
 Binghamton, N. Y.  
 Inkster  
 Greenwood, N. Y.  
 Indianapolis, Ind.  
 Saginaw  
 Forest Park, Ill.  
 Jackson  
 Eastpoint, Fla.  
 Sodus  
 Cherrydale, Va.  
 Detroit  
 Washington, D. C.  
 Ann Arbor  
 Manistee  
 Saginaw  
 Detroit  
 Detroit  
 Payne, Ohio  
 Chillicothe, Ohio  
 Detroit  
 Detroit  
 Flint  
 Youngstown, Ohio  
 Manistee

Laurence Edward Burgess	M	Grand Rapids
Stephen Lovell Burgwin	E	Guys Mills, Pa.
George Treble Burke	Ch	Detroit
Glen Charles Burns		Clarence, N. Y.
Stanley August Burroughs		Hillsdale
Charles Russell Burrows	E	New York, N. Y.
Landon Van Ness Burt		Washington, D. C.
Lewis Harrison Burton	C	Ada
Walter Towner Burwell	M	Kalkaska
Harold George Butler	C	Ann Arbor
Walter Damon Butler	C	Detroit
Orville Kinley Butzbach	E	Benton Harbor
Rafael Luis Cabezas	Mar	Santa Cruz, Argentina
John Michael Cain		Lead, S. Dak.
Paul Sylvester Calkins	C	Ann Arbor
William Paxton Callahan	E	Gibbsland, La.
George Leslie Callaway		Wilmington, Del.
Heath P. Calvin	C	Niles
David Gordon Cameron		London, Ont.
Gibson Miller Cameron	Mar	Detroit
Archibald Andres Campbell	M	Grand Haven
Calvin Arthur Campbell	Ch	Indian River
Charles Duncan Campbell		Ann Arbor
Stuart Malcolm Campbell	E	Toledo, Ohio
Howard Lester Canfield		Ann Arbor
Leo Augustine Cannon	C	Detroit
William Alden Capen	M	Lockport, N. Y.
Erwin Benjamin Carbeck		Ann Arbor
Joseph Phelps Card		Highland Park, Ill.
Eugene Cardwell	C	Noblesville, Ind.
Darl Francis Caris	E	Ann Arbor
Carl Paul Carlson	E	Englewood, N. J.
Frank Everett Carlson	E	Detroit
George Gay Carman	M	Grand Rapids
Verner John Carr		Wakefield
William Edward Carroll	Ch	Coffeyville, Kans.
Alexander Edwin Carson	E	Detroit
William Harvey Cary, Jr.	C	Ann Arbor
Harlow Mills Case	E	Benzonia
Robert Whitehead Case	Ch	Bowling Green, Ohio
Celestino Castro	C	Juncos, P. R.
Samuel Max Catsman		Flint
Howard Owen Cedergreen	Aero	Anaconda, Mont.
Clark Elmer Center	M	Sandusky, Ohio
Jitendra Nath Chakrabarty		Calcutta, India
Earl Manning Champion, Jr.	M	Detroit
James Frank Chapman	M	Ann Arbor
Harry Jerome Chase		Dowagiac

Balwant Singh Chaulle	M	Fatchnangle, India
Sowo Lieu Cheng		Shanghai, China
Howard Quoy Chinn	Ch	Berkeley, Calif.
Albert Ferdinand Christian	Ch	Alpena
Carl Winn Christman	Ch	Windsor, Ont.
Chia Jen Chu	Aero	Soochow, China
Curtis Richard Chynoweth	C	Detroit
Carl Peter Clare	E	Chewelah, Wash.
Charles Foster Clark	Ch	Bay City
Claude Lester Clark	Ch	Saginaw
Gareth Olmstead Clark		Spencerport, N. Y.
Henry Bogert Clark		Tenafly, N. J.
John James Clark		Ontonagon
William Allan Clark	C	Pontiac
Richard Gesse Clarkson	Ch	Detroit
Cyril David Clavette	Aero	Ann Arbor
Stuart Demorest Clayton		Chicago, Ill.
Clarence Matheson Clemens	M	Plymouth
Clement Wood Clemons	E	Washington, D. C.
Maurice Lyndon Cleveland		Frankfort
William Harold Clinton		Walkerville, Ont.
†Arthur Franklin Cloud, g	C	Stillwater, Okla.
James Aloisius Clulo	C	Marquette
John William Coale	Mar	Havre de Grace, Md.
Anson Williams Coan		Detroit
James Oliver Coates	E	Ann Arbor
Hal Begtrup Coats	Ch	Detroit
Harry Everett Coburn, Jr.	Ch	Buffalo, N. Y.
Glenn Wendell Cochran	E	Detroit
Harold Chester Cochran	C	Akron, Ohio
Frantz Eli Coe		Ann Arbor
Nicholas Louis Colangelo	E	Batavia, N. Y.
William Cullen Colburn	C	Biltmore, N. C.
David Denton Cole	E	Baltic
Elmer Ellsworth Cole	Ch	Reed City
Herbert William Cole	M	Grand Rapids
Kenneth R. Cole	Aero	Painesville, Ohio
Owen Albert Colegrove	M	Ypsilanti
Leo Walter Coleman	M	Buffalo, N. Y.
Charles Stuart Collier		Frankfort
Mark Mathew Collins	C	Port Huron
Wallace H. Collins	E	Ypsilanti
William Truman Colman	Aero	Dunkirk, N. Y.
Ramond Lee Comb	C	Sault Ste. Marie
Robert Shaw Comstock	M	Traverse City
Edwin Daley Conable	E	Hinsdale, Ill.
John Smith Congo		Port Huron
Thomas Dewey Conlin	C	Crystal Falls



Bemsley Wilson Conn	Ch	Owosso
Graeme Harold Conrad		Ypsilanti
Harry E. Conrad	E	Albion
Harold John Conroy	C	Battle Creek
George Fletcher Conway	E	Detroit
Fred Gotham Cook	E	Evanston, Ill.
Richard Marshall Cook	Ch	Hastings
William Frederick Cook		Northport
Philip Charles Cooke	C	Kalamazoo
William Henry Cooper	E	Passiac, N. J.
Gerald C. Coppins	C	Hudson
Lawrence Donald Corlett	M	Ann Arbor
Henrique de Magalhaes Correa	C	Nichteroy, Brazil
Henry John Corsette	C	Olean, N. Y.
Ralph Law Coryell	Ch	Detroit
Warren Goodell Coryell	M	Youngstown, Ohio
Ciro Ambrosio Costa	M	Buenos Aires, Argentina
McKenzie Cottrell	E	Morenci
†Walter Learned Couse, Jr.	C	Detroit
Hudson Cruise Covert	Ch	Pontiac
Howard Francis Cowell		Detroit
Fayette Levi Coykendall		Rochester, N. Y.
Cyril Aloysius Coyne		Scranton, Pa.
Joseph Richard Coz		Arequipa, Peru
Thomas Cranage		Bay City
Therold Lawrence Crandall		Wellsville, N. Y.
Lawrence Julius Crane	M	Detroit
Roland Neil Crane	C	Detroit
Peter Williamson Crans	E	St. Joseph
Frederick William Cron		Manistee
Foster Lamont Cross		Ann Arbor
Jack Prior Cummings	M	Detroit
Herbert Clarence Curl	E	Muskegon
Louis Botto Curran	M	Louisville, Ky.
Charles Clinton Currie		Battle Creek
Russell Greilick Curtis	C	Traverse City
Wilbur Nye Curtis		Battle Creek
James John Curto	C	Calumet
Nelson Teixeira de Costa	C	Rio de Janeiro, Brazil
Harold Chester Dahnke	M	Detroit
Richard Young Dakin	M	Pasadena, Calif.
Naseeb Ghareeb Damoose	C	Grand Rapids
Clarence Norman Daniel	C	Detroit
Erwin Everard Darling	M	Orion
Edward Willard Dart	Aero	Pelham, N. Y.
Lester Bene Dasher	C	Detroit
Francis Correa da Silva, Jr.		Rio de Janeiro, Brazil
Richard William Davidson		Franklinville, N. Y.

Roscoe Alexander Davidson		Warren, Pa.
James Thoburn Davies	C	Wakefield
Clayton Lee Davis		Alpena
William Rufus Day	Ch	Cleveland, Ohio
Frank Sylvester Daykin		Cleveland, Ohio
James Brayton Deane	M	Grand Rapids
Sidney DeBoer	C	Detroit
Cornelius William DeClark	C	Grand Rapids
George Louis DeFoe	Aero	Syracuse, N. Y.
Daniel Christian DeGraft	C	Grand Rapids
Emil Edward Deister	M	Wayne, Ind.
James DeKiep		Grand Haven
David Roath DeLay	Mar	Winnetka, Ill.
Gaillard Ward Dell		Sand Lake
Rodulfo Serra del Valle, Jr.	C	Ponce, P. R.
Willard I. Deniston	M	Buffalo, N. Y.
Howard Lee Dennison	C	Hornell, N. Y.
Amos Densmore	M	Marquette
Kenneth Verne DePree	Ch	Zeeland
James Reynolds DePuy	M	Oak Park, Ill.
Laverne Edward Dersham	Ch	Blissfield
John Marcy Detwyler	M	Ann Arbor
Irving Blackwood Dick	Ch	Tarrytown, N. Y.
Henry Randel Dickinson	Ch	Grand Rapids
Franklin Joseph Dickman	C	Harbor Springs
William Stanley Diehl	E	Sewickley, Pa.
George John Dietle	C	Detroit
Norman Earl Dietz	Ch	Muskegon
Philip Hooper Dietz		Cleveland, Ohio
Ronald Bates Dillenbeck		Corning, N. Y.
Harrison Irving Dixon	M	Cleveland, Ohio
Marshall Hackney Dixon	E	Piedmont, W. Va.
Abraham Harry Dobbs	C	Perth Amboy, N. J.
Wesley Joseph Dodge		Buffalo, N. Y.
Sadaichi Dodo	C	Kealia, Hawaii
Manong Nazareth Donegian	C	Detroit
Donald Martin Donker	E	Grand Rapids
Henry Frederick Donner	E	Ransomville, N. Y.
James Noel Donohoe		Detroit
Sidney Dorb	E	Detroit
Louis Alexander Dorff	E	Grand Rapids
Leo John Dornbos	E	Grand Rapids
Albert Gordon Dorrance	C	Canandaigua, N. Y.
Albert Jay Doty		Ann Arbor
John Ellsworth Doty		Negaunee
Ralph Judson Doty	E	Ann Arbor
Wendell E. Doty	E	Bedford
Edward Harding Dougherty		Muskegon

Alden Ball Dow		Midland
Ivan Winfield Downing		Alpena
Edward Monrad Drag	C	Alpena
Frederick Berkeley Drexel	M	Detroit
Charles Cana Driscoll	E	Detroit
†Theodore Harold Dubbink, a	Ch	Holland
George Dubpernell	Ch	Detroit
James Eugene Duffy, Jr.	M	Bay City
George Clarke Duncan	C	Phoenix, Ariz.
Robert William Duncan	Aero	Detroit
Donald Bird Dunham		Detroit
John McCormick Dunning	C	Oklahoma City, Okla.
George Francis Durand	M	Port Huron
†Ben Dushnik, a	Ch	Detroit
Carl Theodore Dust	C	Detroit
Carl Leonard Dyni	C	Detroit
Richard Earhart	M	Ann Arbor
Frederick Nicol Eaton	Ch	Calumet
Harvey Kregg Ebert		Detroit
Emil Emanuel Ebner, Jr.	Ch	Atchison, Kans.
Eugene La Moyne Eckfield	Mar	Royal Oak
Floyd Gifford Eckles	Geod. & Surv.	Plymouth
Edwin Carrington Eddy	M	Flint
Percy Anway Edwards	C	Central Lake
Tom Strong Edwards	M	South Rockwood
Ralph Burlin Ehlers		Alexandria, Ohio
Dudley Edward Eisele	C	Iron Mountain
Charles Vinton Elder	M	Ypsilanti
Schuyler Blodgett Elliott	Mar	Cleveland, Ohio
Melvin John Ellis		Laurium
Clay Davis Ellison	M	Dalton, Pa.
Nathaniel Ely	M	Rutherford, N. J.
Edwin Louis Emens	M	Rochester, N. Y.
Frank Allan EnEarl		Ann Arbor
Raymond Orr EnEarl		Ann Arbor
Albert Douglas Eplett	M	Michigan City, Ind.
Fred Koontz Eshleman		Ludington
Rene Esteves	C	Aguadilla, P. R.
Enrique Edwardo Etcheves		Paravia, Argentina
Archibald Aubrey Evans		Lonaconing, Md.
Franklin Leland Everett	M	Kalamazoo
Robert Pierce Everett	M	Detroit
Russell Eugene Eversdyk	C	Grand Rapids
Loren Daniel Ewen		Carrington, N. Dak.
Karl Joseph Fairbanks	Aero	Watertown, N. Y.
Michael Joseph Faljione	Ch	Detroit
George Alten Farquhar		Monongahela, Pa.
George Farr, Jr.	Ch	Cleveland, Ohio

Richard Emil Feick	C	Sandusky, Ohio
Theodore Gustaf Fellman		Marquette
Julian Robert Fellows	M	Ann Arbor
Mildred Elizabeth Fellows	Spl.P.T.	Ann Arbor
Fred William Felt	Spl.C	Detroit
Howard Conde Felver, Jr.	M	Cleveland, Ohio
Almon Norwood Fenton	E	Ann Arbor
Henry Ferenz	C	Flint
Harry Weidel Ferguson	Ch	Reading, Pa.
Leonard Frederick Finkler		Coopersville
Ross Herman Firestone	M	Kingfisher, Okla.
Lloyd Fishbeck	E	Detroit
Clifford Ernest Fishbeck	E	Ann Arbor
Lawrence Elbert Fisher		Ann Arbor
Robert Edwyne Fisher	Mar	Ann Arbor
†Russell Arden Fisher, a		Ludington
Lloyd Hardy Fitts	C	Barker, N. Y.
Charles Webster Flagler	M	Spokane, Wash.
Wilmer Stuart Fleming	C	Beaver, Pa.
Albert Otis Flindt		Springfield, Ohio
Carl William Floss	E	Detroit
Mahlon Leroy Foreman	E	Bellefonte, Pa.
Paul David Foreman		Bellefonte, Pa.
James Bennoch Forman, Jr.		Alpena
Theodore Roosevelt Fortson		Montgomery, Ala.
John Robert Fortune, Jr.	Ch	Detroit
Harold Raymond Foss		Detroit
Leland William Fought	Ch	Oak Harbor, Ohio
Gordon Charles Fowler	M	Chicago, Ill.
David Albert Fox	Ch	Evanston, Ill.
Edward Michael Fox	C	Chicago, Ill.
Benjamin Franklin	E	Buffalo, N. Y.
Ellis Bernard Freeman	Ch	Highland Park
Fred Marquette Freeman	C	Detroit
Lawrence Stephen Freeman	C	East Aurora, N. Y.
Ronald Melville Freeman	C	Detroit
Kirke Osborn French	C	Marshall
Leslie Allan French, Jr.	C	Escanaba
Lester Irving Friedman	E	Cleveland, Ohio
†Earl Clifford Friel, g	Aero	Minneapolis, Minn.
Gerald Harvey Frieling	E	Grand Rapids
Martin Fritter, Jr.		Toledo, Ohio
Leo Henry Frye	M	Detroit
Lyman Donald Fuller		Detroit
Marquis Richmond Fuller	C	Manitou Beach
Donald Henry Gaines	M	Detroit
Alfred Hugh Gallagher		Oak Park, Ill.
William Gallancy	C	Rochester, N. Y.

Cletus Galloway	C	Ann Arbor
Clifford George Gallup	E	Jackson
Leland Russell Gare	C	Northampton, Mass.
Robert Burrell Gaskeen		Youngstown, Ohio
Alexander Eugene Gaydos		Carteret, N. J.
Richard Charles Gazley	Aero	Elyria, Ohio
Walter Daniel Geeting	C	West Alexandria, Ohio
Thomas Ellis Gerrie	M	Port Huron
Louis John Gess	M	St. Joseph
George Gibson	Ch	Upper Montclair, N. J.
Norman Reeder Gibson		Ann Arbor
Proctor Joseph Gilbert	Ch	Oak Park, Ill.
James Robert Gilpin	M	Rochester, N. Y.
George Charles Givens	E	Cherokee, Iowa
David Hasler Glass, Jr.	E	Flint
Felix Stephen Glaza	E	Bay City
Roger Childs Gleason	Ch	Ann Arbor
Lyle Emory Glenn	M	Ann Arbor
Horace Henry Glew	E	Benton Harbor
Hubert Garret Goebel	E	Grand Rapids
Fred John Goellner	E	Port Gibson, N. Y.
John Dobbie Golder	C	Indiana Harbor, Ind.
George Morris Golds	C	Holland
Jacob Ernest Goldstein		Detroit
†John Everitt Good, g	C	Allentown, Pa.
Leslie Whitcomb Goodell		Eau Claire
Stanley Evyln Goodell	E	Eau Claire
John Emery Goodrich	C	Paullina, Iowa
Eddis Julian Goodstone	C	Springfield, Mass.
Earl Gordon	Ch	Ann Arbor
Hubert William Gouldthorpe		Waterport, N. Y.
John Loudon Gow	M	Duluth, Minn.
Ralph Raymond Graichen	Aero	Ann Arbor
Ralph Andrew Gram		Menominee
Alden Edward Graneggen	E	National Mine
Robert Alan Granger	M	Chicago, Ill.
Joseph Albert Grant	M	Monongahela, Pa.
Anton Frank Grassl		Menominee
William Graulich, Jr.	M	Orange, N. J.
Eben Montgomery Graves	Ch	Saginaw
Jo Anderson Graves	C	Royal Oak
Joseph B. Graves	E	Detroit
Victor Anthony Graves		Detroit
Louis George Gray	M	Eger, Hungary
DeWitt Clinton Green	E	Greenville
Frederick Louis Green	M	Detroit
Gordon Gilmore Greene		Buena Vista, Ohio
Branimir F. Grogoric	M	Detroit

Ben Meyer Gregory	Ch	Grand Rapids
Walter Alfred Greig	M	Highland Park
Chester Andrew Greiling		Detroit
Waldo Karl Greiner	C	Sparta
George Henry Griffin	E	Oberlin, Kans.
Raymond C. Griffith	M	Coldwater
Byron Russell Griffiths	Ch	Angola, Ind.
Carl William Grimm		Oak Park, Ill.
James Stephen Groenwald		Klerksdorp, South Africa
Willard John Grogan		Chicago, Ill.
Yahn Groshko	C	Detroit
Benjamin Edwin Groves	C	Ann Arbor
Henry George Groves	C	Lakota, N. Dak.
Anton Jordan Gruncharoff	E	Battle Creek
John Robert Grylls	M	Detroit
Maurice Alfred Guenin	C	Saginaw
Elwood Douglas Guernsey	C	Ogden, Utah
John Patterson Gunn	C	Lexington, Ky.
Walter Ludwig Gustafson		Lockport, Ill.
Ralph Bunker Gutekunst	M	Grass Lake
Karl Henry Hachmuth	Ch	Comstock Park
Edgar August Hahn	Ch	Mount Clemens
Matsuzo Hakusui	Spl.Mar	Osaka, Japan
Rudolph Halvard Halberg	M	Waterbury, Conn.
Morris Remington Hale	E	Hudson
Arthur Stanton Hall, Jr.	Ch	Mount Clemens
Eugene Bigelow Hall		Adrian
Foster Arthur Hall		Ann Arbor
Walter Alan Hall	Ch	Flint
Warren Hastings Hall	Ch	Youngstown, Ohio
William Wallace Hall		Evanston, Ill.
Mike Martin Halley	E	Lincoln, Nebr.
John MacHarg Halsted		Evanston, Ill.
Donald Emerson Hamilton	Ch	Detroit
Alexander George Hane		St. Joseph
Harry Ford Hanford	M	Detroit
Alfred Edward Hansen	C	Muskegon
John Halvor Hansen		Menominee
Russell Ferridan Hardy	M	Ypsilanti
Weldon Parsons Hare		Painted Post, N. Y.
Mark Henry Harrington		Pontiac
Richard Harry Harrington	Ch	Detroit
Clarke Edwin Harris	C	Royal Oak
Kingsley Arthur Harris		Sault Ste. Marie
Millard Henry Harris		Tiffin, Ohio
Stanley Floyd Harris		Franklinville, N. Y.
Thomas Glenn Harrold	M	Lakewood, Ohio
Frederick Parmenter Hart	M	Detroit

John Joseph Hart	Ch	New York, N. Y.
Wilbert Gray Hartle	E	Lakewood, Ohio
Arthur Hartwell, Jr.	Ch	Birmingham
Marvin Spears Harvey	C	Traverse City
Clarence Edward Harwick	E	Ypsilanti
John Ray Hasen	E	Lambertville
Chester Winthrop Haskins	M	Detroit
William Henry Hasselbach	C	Toledo, Ohio
Jesse Eugene Hatch	E	Franklinville, N. Y.
Harold Dana Hauf		Utica, N. Y.
Robert George Hauser	E	Ann Arbor
Benjamin Franklin Hausman	C	Toledo, Ohio
Harry Hawkins	M	Saginaw
Verl J. Hawks	E	Coloma
Howard Albert Hayden	M	Detroit
Frank Pratt Haydon	E	Ypsilanti
Laughlin Thomas Hayes	M	Sebring, Ohio
Homer James Hayward	C	Highland Park
John Burt Hazle		Lackawanna, N. Y.
†George Willard Heard, a	E	Ontonagon
William Sanger Hearing	E	Duluth, Minn.
William Harold Heath	C	Corning, N. Y.
Harry Edwin Heck	C	Chicago, Ill.
Fred Hediger	E	Ann Arbor
Arnold Faust Heineman	M	Detroit
Frederick Willard Heller	M	Oak Harbor, Ohio
Arlen Roosevelt Hellwarth	E	Celina, Ohio
Clayton Warner Henderson	M	Sault Ste. Marie
Lyle LeRoy Henninger		Olean, N. Y.
William Sears Herbert	C	Saginaw
Warden Laughlin Herd		Port Huron
Charles Harold Herman		St. Joseph
William Henry Herrnstein, Jr.	M	Chillicothe, Ohio
Russell Lawrence Hertel		Endicott, N. Y.
Alvin John Herzig	Ch	Toledo, Ohio
John Lenard Herzog		Saginaw
Harry Conrad Hess	E	Port Huron
LeRoy Gray Heston	C	Detroit
Raymond Stanley Heym	Ch	Detroit
John Timothy Hickey	Spl.C	Jackson
Ewart Gladstone Hickling	M	La Junta, Col.
William Edward Higgins		New Haven, Conn.
Elmer August Hilburger		Buffalo, N. Y.
Frederick John Hildebrandt	C	Huron, Ohio
Clifton Tabor Hilderley	C	Hersey
Clifton Carr Hill	C	Templeton, Mass.
†Lloyd Robert Hill, g	C	Avon Lake, Ohio
Omar Frederick Hill		Port Huron

Harold Hilsinger	Ch	St. Louis
Clarence Charles Hinchberger		Butler, Pa.
William Tracy Hinckley	Ch	Grand Rapids
George Hineman	M	Bryan, Ohio
Robert Ellis Hirstenstein	M	Chicago, Ill.
Reinhart Adolph Hiss	M	Barberton, Ohio
Glenn Sparling Hiuser	C	Ann Arbor
Edmond Hume Hoben		Kalamazoo
Robert Walton Hodges	M	Ypsilanti
Alton Loomis Hodgins		Sparta
George Earl Hodgins	C	Bay City
Herman Hoek		Grand Rapids
Roland Armour Hoffman	E	Port Huron
Theodore John Hoffman		Manitowac, Wis.
Joseph Theodore Hoffmann	E	Detroit
Gustav Oscar Hoglund	Aero	Milwaukee, Wis.
†Norton Eugene Holland, a	C	Detroit
Roderick Arnold Holliday	C	Muizenberg, S. Africa
Kenneth Lee Hollister	M	Painted Post, N. Y.
Earl Ludwig Holmberg	E	Highland Park
George Stuart Holmes	E	North Henderson, Ill.
Paul James Holmes	Aero	North Henderson, Ill.
Ang Kai Hoo	Ch	Hunan, China
Victor William Hooper		Port Huron
Frederick Johnson Hooven	Aero	Dayton, Ohio
Curtis Launcelot Hopson	E	Harbor Beach
Jacob Wilhelm Hostrup	C	Clinton, Iowa
Knox Briscoe Howe	C	Houston, Tex.
Russell Troy Howe	M	Detroit
Andrew Allen Howell	M	Cleveland, Oh'o
Hobart Durfee Hoyt	C	Grosse Pointe Shores
Dung-Bie Hsu	Ch	Shanghai, China
Ying Hsu	M	Changsha, China
Chun Ying Huang	Ch	Hinghwa, China
Earl Frederick Hubacker	M	Cheboygan
Henry Hudson Hubbard	E	Battle Creek
Michael Joseph Huber		Gowanda, N. Y.
Mark Charles Huck	Ch	Quincy, Ill.
Victor Everett Hulett	M	Durand
Charles Burke Hull	C	Oil City, Pa.
Francis Melvin Hull		Detroit
Morgan Reid Hull	E	La Grange, Ill.
Harold Thomas Hulscher	C	Battle Creek
Stewart Harding Hulse	M	Fort Wayne, Ind.
Charles Lou's Hulswit	E	Grand Rapids
John Warren Humphrey	C	Detroit
Daniel Comstock Hungerford		Corning, N. Y.
Charles William Hunter	C	South Boardman



George William Hunter	C	Toledo, Ohio
Chauncey Sanborn Hutchins		Pontiac
Ford Macklem Hutchinson	E	Detroit
Herbert Grant Iler	E	Detroit
James Munro Innes		Kansas City, Mo.
Mark Lorin Ireland, Jr.	Mar	Chesaning
Robert Henry Isbell	M	Toledo, Ohio
Haig Iskenderian	E	Detroit
Ahmed Aziz Izzet		Constantinople, Turkey
Paul George Jacka	M	Calumet
James Cooper Jackson	E	Reading, Pa.
Kenneth Branch Jackson	E	St. Johns
Arthur Jacobsen		Escanaba
Balvantrao Laxmanrao Jadhav	C	Kolhapur, India
Leon Herman Jagrowski	Ch	Detroit
Robert Frederick James	Aero	Rochester, N. Y.
Francis John Jaros		Detroit
Melanio Bobadilla Javierto	M	Lucena, P. I.
Joseph Campau Jelsch	E	Romeo
Andrew Theodore Jensen	C	Powers
Gilbert Theron Jerome	C	Detroit
Morris K. Jessup	E	Ann Arbor
J. Theron Jett	E	Ann Arbor
Frank Myron Jobes	Spl.M	Ocean Beach, Calif.
James Edward Johns	C	Lansing
Arthur Bernard Johnson	E	Grand Rapids
Charles Henry Johnson	M	Painted Post, N. Y.
Edward Oscar Johnson	E	Negaunee
George McKnight Johnson	M	Wolcott, N. Y.
Harold Richard Johnson	E	South Bend, Ind.
Harry Michael Johnson	C	Detroit
James Blackmer Johnson	E	Belding
Julius Theodore Johnson		Traverse City
Smith Edward Johnson	M	Grand Rapids
Theodore Warren Johnson	M	Ludington
Thomas Watson Johnson	E	Wolcott, N. Y.
Walter Charles Johnson	E	South Bend, Ind.
Elmer Clyde Jones	M	Oak Park, Ill.
Marvin Charles Jones	Ch	Concord
Myron Alfred Jones	Ch	Youngstown, Ohio
Ralph William Jones	E	Clio
Carl Christian Jordan	M	Detroit
Frank Milton Jordan	E	Detroit
John William Justice	C	Niagara Falls, N. Y.
Carl William Kalchthaler	E	Algonac
Ching-Ying Kao	C	Nintsin, China
George Peter Karageorges	E	Detroit
Emory Frederick Karnatz	C	Detroit

Henry Rutgers Kasson, Jr.		Chicago, Ill.
Maxwell Katz	E	Rochester, N. Y.
John Wallace Kearns	E	Evanston, Ill.
John Wolcott Keebler		Williamsport, Pa.
William Henry Keefer	Spl.C	Galien
Owen Victor Keller	Ch	Detroit
Paul Joseph Keller	E	Evanston, Ill.
James Miles Kells	Spl.C	Detroit
Charles Fay Kenrick	M	Onaway
Clarence Delwin Kent, Jr.	Spl.M	Colon
Leland Hayes Kent	Mar	Norman, Okla.
Harold William Keopka	M	Westfield, N. Y.
Murry John Kepler	C	Detroit
William Wallace Kerr	M	Wilmette, Ill.
Berrien Caron Ketchum	C	Detroit
Karl Edward Ketchum	C	Detroit
Kurt Rudolph Keydel	Ch	Detroit
William Kent Kidder	Ch	Kalamazoo
Robert Frederick Kile	M	Dallas, Tex.
Wilford Godfrey Kilpatrick	M	Detroit
Frederick Anthony Kimmich	C	Detroit
Charles Kimpton	E	Muskegon Heights
Thomas Mills King	M	Coldwater
Thomas Ross King		Wilmette, Ill.
Walter Frederick King	M	London, Ont.
Gerald Francis Kipp	M	Bronson
Claire Moshier Kirk		Battle Creek
Victor Lee Kirk	M	Iola, Kans.
Arthur Holcomb Kirkpatrick		Grand Rapids
Louis Robert Kirschman		Hartford, Conn.
Clarence Willard Klassen	C	Grand Haven
Walter Bernard Kleimann		Stuttgart, Ark.
Richard Adams Klein		Chicago, Ill.
Frank Edward Klopfer		Chicago, Ill.
Erving Leighton Knapp	Ch	Corning, N. Y.
Lester Knight	E	Laingsburg
Noble Andrew Knight		Sandusky, Ohio
Frederick Delbridge Knoblock	M	Detroit
Elmer Theodore Knodel	M	Chicago, Ill.
Carl John Koester	M	Cleveland, Ohio
Robert Fischer Kohler	C	New Canaan, Conn.
Norman Clark Kolb	E	Battle Creek
Zolton Theodore Komarek	C	Huron, Ohio
Andrew Mitchell Komora	C	Ann Arbor
Joseph Frank Konupek		Detroit
Martin Charles Kooyoomjian	E	Detroit
Herbert Prebble Kopf		Maywood, Ill.
Walter Joseph Korecki	C	Grand Rapids

Harold Edward Kortman	Ch	Detroit
Alexander Joseph Kovach	E	Detroit
Andrew William Kramer		Belding
Frederick Stutzman Kratz	E	Buffalo, N. Y.
William Christian Kratz, Jr.	C	Buffalo, N. Y.
Richard Henry Krause	M	Rockford
John Phillip Kremer		Grand Rapids
†Frederick Richard Kretschmar,	g M	Detroit
Harry Rudolf Krieter	M	Chicago, Ill.
Basil Raymond Kritz	M	Detroit
Gabriel Kron	E	Baia-Mare, Roumania
Joseph Kron	E	Baia-Mare, Roumania
Walter Perry Kroupa	E	Cedar
Boleslaw Valentine Krzyminski	C	Bay City
Herbert Kuenzel		Grand Rapids
Rupert William Kuenzel		Grand Rapids
Walter Alfred Kuenzel		Grand Rapids
Yen Kulachan	C	Bangkok, Siam
Tzu Chun Kwong	C	Canton, China
John Marvin La Core		Elk Rapids
James Alfred Lafer		Detroit
Walter Lahde	C	Aberdeen, Wash.
Charles Millross Lake	M	Detroit
Oscar Wiles Lake	M	Benton Harbor
Harry Kay-Hop Lam	C	Canton, China
George Goodrich Lamb		Grand Rapids
Harry Lingnom Lamm		Canton, China
Hiram Ivan Lamphier	E	Berlin, N. Y.
Joseph Harold Landre	C	Binghamton, N. Y.
Arthur Leroy Lane	M	Detroit
Lloyd Lester Lang	E	Harbor Beach
Charles Russell Lange	C	Detroit
Joseph William Larson	E	Marquette
Stanley Stokes LaSha	Aero	Detroit
Edward Dunster Lasley	C	Toledo, Ohio
Merle David Latson	E	Ann Arbor
George Frederick Lawley	II Mar	Braintree, Mass.
Reuel Dudley Layman	E	Berrien Centre
Francis Edward Leach	E	Cassopolis
William Addison Leach		Canonsburg, Pa.
Alvin Porter Lee	M	Oklmulgee, Okla.
Arthur Henry Lee		Pontiac
Ping Woon Lee	C	Detroit
William Joan Lee	E	Canton, China
Curtis LeFever	Geod. & Surv.	Ann Arbor
Theodore William Legatski	Ch	Alpena
Frederic Abbott Leisen	Mar	Detroit
Park Sing Lem	Ch	Toronto, Ont.

William Marion Lempka		Florida, N. Y.
Francis Wing Leong	Ch	Detroit
Robert Wilson Leslie	Ch	Highland Park
Julian Charles Lever	M	Casper, Wyo.
Waldeck Wolf Levi	Ch	Ann Arbor
Alfred Raleigh Lewis	M	Amite, La.
Charles DeMay Lewis		Ann Arbor
Robert O. Lewis	E	Flint
Taylor Gray Lewis		Detroit
Kai Shou Liang	C	Canton, China
Maurice Charles Libert	M	Lewiston, Idaho
Natsen Lieu	Ch	Manondjaja, Java
Sam Lifchitz		Detroit
Sol Lifsz	C	Detroit
Rensis Likert	Ch	Omaha, Nebr.
Howard Linden Lilley	C	Freemont, Ohio
Arthur Harris Lince	E	Allegan
Walter Evald Lind	Mar	Bay City
Caryl Andrew Lindberg	E	Grand Rapids
Ralph Leslie Lindemulder	E	Grand Rapids
Benjamin George Lister	E	Detroit
James Gilbert Little	C	Monroe
James Walsh Littleton		Cleveland, Ohio
Ju-Sung Liu	C	Lan Hsien, China
Herbert Marshall Lloyd		Montclair, N. J.
Morris Hepworth Lloyd	E	Tonawanda, N. Y.
John Dudley Lockton	Ch	Elkhart, Ind.
Howard C. Looney		Birmingham
Lester Alex Looney		Birmingham
Arturo Macias Lopez	M	San Juan, P. R.
William Emley Lore		Detroit
Frederick Richardson Lough		Alpena
Claude Egbert Louy	E	Painted Post, N. Y.
Lyman Chandler Lovell	C	South Hadley, Mass.
John Henry Lovette		Saginaw
Frederick Clarke Lowber		Ann Arbor
Donald Miner Lowe	Ch	Dryden, N. Y.
Durward Oliphant Lowry		Ann Arbor
Rafael Luna	C	Buenos Aires, Argentina
Allen Todd Luyster		Glen Head, N. Y.
Nelson George Lyle		Bromley
James Francis Lynn	M	Detroit
Hubert Wilson Lyons	E	Guthrie Center, Iowa
Kai Yen Ma	M	Chekiang, China
Clifford Charles McArthur	M	Grand Rapids
Howard Edward McArthur	M	Ann Arbor
William MacKey McArthur	M	Bay City
George Adams McBride		Omaha, Nebr.

Edward Thomas McCarthy	E	Corning, N. Y.
John Foley McCarthy	E	Salt Lake City, Utah
Howard Usher McClelland	M	Birmingham
Lee Stuart McClenahan	C	Wyandotte
William Allen McClenahan	C	Wyandotte
Rex Hamilton McClintock	M	New Castle, Pa.
James Reuben McCordic	C	Royal Oak
Lloyd Chester McCormick	E	Detroit
Harold Joe McCotter	E	Ann Arbor
John Alexander McCowan	E	Port Huron
Charles Kenneth McCracken	C	St. Joseph
John Wilfred McCrae	E	Detroit
John Frederick McCue		Grand Rapids
Arthur McCutchan	M	Alexis, Ill.
Robert Benjamin McDade		Kane, Pa.
Basil John McDonald	Ch	Detroit
John Frederick McDonnell	E	L'Anse
Porter Wilson McDonnell	C	Erie, Pa.
Harry Wendall MacDuff	C	Detroit
Richard James McGormley		Tiffin, Ohio
Wilfred Reid McIlveen	C	Detroit
Kent Clyde McIntyre		Superior, Wis.
Kenneth John MacIves	C	Alpena
George John Mack	C	Niagara Falls, N. Y.
Ernest James McKay		Flint
Clifford Bradbury McKechnie	C	Detroit
William Thomas McKenney	Spl.C	Clifton Forge, Va.
Thomas Godfrey Mackenzie	Spl. C	Gary, Ind.
William Andrew MacKenzie	E	Ashtabula, Ohio
Hugh Joseph McKernan	M	Cadillac
Dennis Alfred McKinney	Ch	Kalamazoo
Harris Dunbar McKinney	C	Sault Ste. Marie
Samuel Alexander McLaughlin	E	Highland Park
Kenneth Hugh McLean		Cheboygan
Miles Ayrault McLennan	C	Detroit
Laurence DeLeon McLouth	Ch	Muskegon
Dan Lorenzo McMahon	E	Belding
Francis Joseph McMahon		Belfast, N. Y.
Robert Jeffery McMeekin, Jr.		Grand Rapids
Jesse Robert McNair		West Springfield, Mass.
John Joseph McNeely	C	Washington, D. C.
Harry Jay McPherson	E	Ann Arbor
Pierson Kemp McWethy	C	Marshall
Knowles Knowlton Madison	M	Ann Arbor
Lloyd Alexander Maeder	C	Springville, N. Y.
John Donald Malnight	E	Jackson
Donald Charles Mann		Birmingham
Ernest Cheney Mansfield		Birmingham

Kenneth Charles Manwaring	E	Allegan
Edward Kant Mao	Ch	Kinkiang, China
†Philip Robert Marcuse, a	Ch	Detroit
Peter Sinwan Mark		Toronto, Ont.
Mathew Gaylord Markle	M	Muskegon
Maurice Markowitz	E	Detroit
Archibald John Marmor	M	Louisville, Ky.
John Irving Marquard	M	North Muskegon
†Donald Excell Marsh, g	M	Akron, Ohio
Arthur Henry Marshall, Jr.	M	Batavia, N. Y.
Edwin Richard Martens	M	Highland Park
James Kreider Martin		Lancaster, Pa.
Richard Sidney Martin	Aero	Dayton, Ohio
James Fred Martini	E	Vulcan
Robert Ingersoll Marty	Ch	St. Catharines, Ont.
Neil Albert Mast		Dexter
Irving Cayanus Matheson	E	Laurium
Thomas Rudolph Mathias		Helena, Mont.
†Grafton William Matthias, g	Ch	Jackson
Fred William Mayer	M	Cleveland, Ohio
Krum Mazneff		Battle Creek
Garbis Peniamin Mechigian	Ch	Highland Park
†William Grant Meier, Jr., a		Escanaba
William Julius Melchers	C	Owosso
Isadore Mendelson	E	Detroit
Frederick Edward Mengel	C	Toledo, Ohio
Andrew Tenbrook Menzies	M	Buffalo, N. Y.
Charles Wolcott Merriam, Jr.	M	Grand Rapids
Robyn Dewey Merriam	C	Charlevoix
Clem George Merriman	C	Pleasant Lake, Ind.
Paul Julius Messany	C	Kalamazoo
Luis Alberto Messone	M	Salta, Argentina
William Lovering Metcalf	C	Detroit
Martin Louis Michaud		Ann Arbor
George Earl Mickle	C	Ann Arbor
Charles Albert Middleton		Aberdeen, Wash.
Edward Steven Mihelchich	C	Calumet
Stanley Antoin Milanowski		Ada
Raymond Thomas Miles		Corning, N. Y.
Charles Albert Miller	C	Marshall
Charles Stewart Miller		Conover, Ohio
Charles Willard Miller	Aero	Walkerville, Ont.
Frank Albert Miller	E	Grand Rapids
Gordon Wellington Miller		Alpena
Joseph Campton Miller, Jr.		Marine City
Robert Wendell Miller		Ypsilanti
Raymond Ambrose Mills	Ch	Endicott, N. Y.
Walter Winifrede Mills		Ashtabula, Ohio

Henry Alexander Milne		Manitoba, Canada
Robert James Minard	C	Grand Rapids
John Avery Miner, Jr.	Mar	Davenport, Iowa
Stuart Knoll Minton	Ch	Detroit
Corliss Norvell Mischnick	Ch	Detroit
George Wycliffe Misner	M	Pleasant Lake, Ind.
La France Adelbert Mitchell	M	Negaunee
William Robert Mitchell		Monroe
Prabodh Chandra Mitra	C	Calcutta, India
Charles Johnson Mock	M	Detroit
George Allen Moles	E	Holyoke, Mass.
Carl Corydon Monrad		Niagara Falls, Ont.
Clement Ward Moody	C	Ann Arbor
†Elliott Edward Moody, g	C	Cranford, N. J.
Morris Cross Moody	E	Holland
Russell Ford Moody	M	Turners Falls, Mass.
James Edward Mooney	C	Saginaw
Frederick Thompson Moore, Jr.	M	Port Huron
James Grant Moore	M	Port Huron
Millard Merrill Moore	E	Grand Rapids
Milton J. Moore		Bay City
Robert Carleton Moore		St. Ignace
Sidney Howes Morgan	M	Battle Creek
Paul Rider Morgrett		Bluffton, Ind.
James Wilson Morse	M	Montague
Peter Mortenson, Jr.	C	Crystal Falls
Daniel James Morton	M	Ann Arbor
Hudson T. Morton, Jr.	Ch	Ann Arbor
Owen D. Mosher	Ch	Grand Rapids
Frank Grant Mote	E	Greenville
Rex Everette Moule	M	Ann Arbor
Charles Saunders Moulthrop		Bay City
Grant Elkanah Mudge	C	Detroit
James Edward Mulavey	E	Alpena
Charles Beatty Mullett	E	Buffalo, N. Y.
Donald Emerson Mulliken	C	Pelham, N. Y.
Lawrence Glenn Mullins		Grand Rapids
Frank Xavier Mushynski	M	Detroit
Morris Joel Muzzy	M	Detroit
Edwin Allen Myers	M	Saginaw
William Brecht Nagel	C	Detroit
Bailey Bodwell Nagle	M	Erie, Pa.
George Lawrence Nampa	C	Calumet
Paul H. Needham	E	Ishpeming
Mortimer Allan Neff	E	Birmingham
Charles Neidelman	C	Detroit
Arthur Manfred Nelson	C	Dalton, Mass.
†Carl Theodore Nelson, a		Escanaba

John Lawrence Nelson C  
 Maurice Hughes Nelson E  
 Walter Gustave Nelson Ch  
 Albert Carl Nerenberg M  
 Archibald William Newberg M  
 Ira Pickett Newby M  
 Kenneth David Newell M  
 †Rembert Hastie Newell, a Ch  
 Edward Raymond Newman C  
 George Allen Newsom E  
 Donald Greenwood Newton  
 Francis Oliver Nicklin M  
 Peer Dudahl Nielsen Ch  
 Valeriano Mapalo Ninobla C  
 †Benjamin Augustine Nolan, Jr., a  
 Edward Joseph Nook  
 John Manuel Noriega E  
 Leo Joseph Nowicki M  
 Edward Enoch Noyes M  
 Francis Thomas O'Brien M  
 John Brown O'Connor C  
 Loring Frederick Oeming  
 Harold Russell Ohlheiser  
 John Folke Ohlson Ch  
 Milo Fred Ohr  
 Carl Alvin Oja  
 Eugene Webb Oldham E  
 Milo Edward Oliphant Aero  
 Merle Oliver E  
 William Hobart Olney C  
 Einar Melvine Orbeck M  
 Darrell Jennings Orcutt C  
 Edwin Manning Orr C  
 John Kenneth Osborn Ch  
 Carl Bertram Osborne E  
 Chauncey Depew Osborne  
 Howard Mortimer Osmun E  
 Donnell Aloysius O'Sullivan  
 Blanton Charles Owen C  
 William Victor Owen C  
 George Quincy Packard E  
 Joseph Allyn Packard M  
 Gustavo Eugenio Padilla C  
 Edward Henry Paepfow  
 George Blackman Page E  
 Paul Harold Page Spl.C  
 Leonard Eugene Paige M  
 Allen Wilbur Palmer C

Sparta  
 Rochester, N. Y.  
 Pontiac  
 Buffalo, N. Y.  
 Grand Marais  
 Anthony, Kans.  
 Lakewood, Ohio  
 Garner, Iowa  
 Buffalo, N. Y.  
 Tecumseh  
 Waterbury, Conn.  
 Franklin, Pa.  
 Ironwood  
 Aringay, P. I.  
 Detroit  
 Kalamazoo  
 Mexico City, Mex.  
 Detroit  
 Washington, D. C.  
 Chicago, Ill.  
 Port Huron  
 Mount Clemens  
 South Wales, N. Y.  
 East Orange, N. J.  
 Monroe  
 Astoria, Ore.  
 Petoskey  
 Ann Arbor  
 Owosso  
 Detroit  
 Eau Claire, Wis.  
 Grant  
 Dearborn  
 Jackson  
 Conneaut, Ohio  
 Bridgeport, Conn.  
 Allegan  
 Port Huron  
 Grand Rapids  
 Buffalo, N. Y.  
 Stoneham, Mass.  
 Chicago, Ill.  
 Mayaguez, P. R.  
 Buffalo, N. Y.  
 Potsdam, N. Y.  
 Milwaukee, Wis.  
 Petoskey  
 Saginaw



Clyde Luellen Palmer	C	Detroit
Gardner Ervin Palmer	Ch	Detroit
Robert Mabie Parke	Ch	Highland Park
Lawson Eugene Parker		Detroit
Paul Dixon Parker	M	Osceola, Wis.
Folger Edgerton Parmeter		Florida, N. Y.
Maynard Belden Parsons	C	Binghamton, N. Y.
Thadeusz Julius Paryski	Aero	Toledo, Ohio
Henry Herman Passolt	Ch	Bridgeport, Conn.
Roy Willis Paton	Aero	Almont
Clayton Everette Patterson	E	Marquette
George Felix Pawlowski		Ann Arbor
Raymond Percival Paynter	E	Flint
Fletcher William Pearce	C	Lake Linden
Herman Albert Peckham	M	Ann Arbor
Chad Arthur Peebles		Quincy
Santiago Victor Perez	C	Havana, Cuba
John Graham Perkins	C	East Providence, R. I.
George Albert Petermann	C	Laurium
Edward Henry Peters	E	Ann Arbor
George Theodore Petrowsky	E	Wayne
Herbert Louis Pfau		Howell
Edward Walton Phillips		Lake Charles, La.
Walter Harold Phillips		Chatham, Ont.
Verne Cecil Piazza	Ch	Detroit
Daniel Laurence Pierce	E	Kalamazoo
Frank Leonard Pierce	M	Ann Arbor
Robert Allen Pierce	M	Saginaw
Arthur Edwin Pierson	M	Pasadena, Calif.
Adolph Pifko	Ch	East Orange, N. J.
Morley McRae Piggott	C	Detroit
Maxymilian Louis Pilarski	E	East Chicago, Ind.
Leonel Corey Pitts	M	Painted Post, N. Y.
Peter Emil Plambeck	M	East Lansing
Roy Arthur Plant	M	Auburn
Aleksander Plutynski	M	Detroit
Walter Joseph Podbielniak	Ch	Buffalo, N. Y.
Herbert Frederick Poehle	Ch	Detroit
Leo Joseph Poitras	M	Gladstone
Herbert Rankin Poland	Ch	Payne, Ohio
Stanley John Polek	C	Binghamton, N. Y.
John Richard Polhamus	C	Denver, Colo.
Charles Frank Pollen	M	Chicago, Ill.
Joseph Polonski	M	Detroit
Merlin Lockwood Poole	E	Windsor, Ont.
Harold Cyril Porter	M	Elyria, Ohio
John Lehmann Post	Ch	Mason
Elbert Leland Potter, Jr.	Ch	Detroit

Henry Burr Powell	M	Griffin, Ga.
Herschel Farr Powell		Romeo
Lewis David Prag	M	Newark, N. J.
Leonard Allen Pratt	E	Traverse City
Lloyd Robert Preston	E	Gaylord
Robert Wilmot Preston	C	Ann Arbor
Stanley Brown Preston		Battle Creek
Harold William Priebe		Detroit
William Jacobus Odendaal	Prinsloo	Spl.E Lindley, So. Africa
John William Pritchard, Jr.		Detroit
Edmund Augustine Propson		Flint
William Loring Prout	M	Rensselaerville, N. Y.
Harry Donald Purdy	M	Appleton, Wis.
Albert Robison Pyott	M	Chicago, Ill.
Vernon Blakeman Qua	Aero	Ann Arbor
Arthur Gustav Quade	M	Rogers
Frank Jaques Quatrillo		Chicago, Ill.
Glen Joseph Quillinan		Ogden, Utah
†Lloyd Forrest Rader, g	C	Columbus, Ind.
Robert Raichilson		Buffalo, N. Y.
Edgardo Rambelli	C	La Banda, Argentina
Ion Theodore Ramsey		Charlotte
Arthur Rautenberg	Ch	Detroit
Wray Walker Rawlings	Mar	Rochester, N. Y.
Paul Jones Rawson	E	Coldwater
Wescott Hudson Read	M	Ludington
Myron Samuel Reason		Jackson
Harvey Elwyn Reed	M	Erie, Pa.
Howard Albert Reed	E	Detroit
Orville Westfall Reed	M	Utica, N. Y.
Stanley Carlyle Reed		Lennon
Donald James Reese	Ch	Chicago, Ill.
Elmer William Reeve	E	Ann Arbor
Frank Albert Reid, Jr.	Aero	Detroit
Robert Lloyd Reid	E	Avoca
William Justin Reilley	Ch	Youngstown, Ohio
Gordon Custer Reish	M	Detroit
William E. Renner		Utica, N. Y.
John Richardson Rhoades		St. Ignace
Arthur Clarence Rich		Battle Creek
Edward Dunbar Rich, Jr.		Lansing
Arthur James Richards	E	Detroit
Glenn Charles Richards	C	Detroit
Kenneth Weatherby Richards	E	Ann Arbor
†Raymond Richards, a	Ch	Leetonia, Ohio
Joseph Stanley Richardson	Ch	Detroit
George William Richel		Alpena
Reginald Rickett		Brighton
Earl Raymond Reithmiller		Jackson

Theron Graydon Riley		Flint
Edwin Frank Ritchie	Mar	Napa, Calif.
William Oscar Ritola		Atlantic Mine
George Ritscher		Moorburg, Germany
Ramon Gerrasio Rivera	E	Ponce, Porto Rico
George Mortimer Roberts	M	Grand Rapids
George Walter Roberts	E	Ypsilanti
Burtis Lowell Robertson	E	Flint
Campbell Robertson	Ch	Kalamazoo
Karl Benjamin Robertson	C	Grand Rapids
Louis Alfred Robillard		Grand Mere, Canada
†Jack Robinson, a	Ch	Buchanan
James Lane Robinson	E	Plain City, Ohio
Byron Junior Rockwood	C	Saginaw
Lester Richard Rodenberg	Ch	Laurenceburg, Ind.
Adolph Charles Roehm	E	Elmhurst, L. I.
Edgar William Roehm		Detroit
Paul Angus Roesner		Detroit
Gordon Leroy Romine		Owego, N. Y.
Edward John Rommel	E	Toledo, Ohio
Leland Elmer Rood	Mar	Painted Post, N. Y.
Arlyn Rosander	E	Scottville
Rudolph Francis Rosatti	C	Vulcan
Harold G. Rose	C	Ashley
Harry Frederic Rose	C	Brooklyn, N. Y.
Leon Theodore Rosenberg	E	Detroit
Foster Braman Roser	C	Flint
†Donald K. Ross, a		Cincinnati, Ohio
Donald Matthews Ross	Ch	Ypsilanti
Harlow Berkley Ross	C	Flint
Julius F. Ross	C	Toledo, Ohio
Walter McKinley Roth	C	Lowell
Arlington Mills Rowe		Marysville
Richard Henry Rowland	Mar	Detroit
Julius Arthur Rowley	C	Traverse City
Nicklaas Rozema	C	Fremont
Llewellyn Carl Ruby	M	Kitchener, Ont.
Arno Otto Rudolph	C	Iron Mountain
Charles Wenborne Rummier	M	Winnetka, Ill.
Gustav Herman Rump		Fort Wayne, Ind.
John Monroe Russ, Jr.	Ch	Red Lick, Miss.
John Arthur Ryan	Ch	Rochester, N. Y.
Joseph Dennis Ryan		Lockport, N. Y.
Basil Ryder		Hartford
Reuben Rufus Ryder	C	Middlesboro, Ky.
Norman Sache	C	Detroit
Stanley Sadowski	E	Detroit
Craig Marion Sage	M	Hastings
Satrag Sahagian	E	Ann Arbor

Francis Patrick St. Peter	Ch		Menominee
Evangelos Nicola Sakellariou	M		Megalapolis, Greece
Edmond Wallace Sanders	M		Lakewood, Ohio
†Robert Ralph Sangbush, a			Detroit
Walter Edward Sargeant	E		Halfway
Stanley Rathburn Saunders			Pontiac
William Kennon Saunders	C		Newport News, Va.
Jacob Filmore Savela			Mass
Raymond Raycroft Sawin	E		Bridgeport, Conn.
Charles Douglas Sawyer			Port Chester, N. Y.
†George de la Porte Sawyer, g	M		Traverse City
Hubert Richard Schaddelee			Grand Rapids
Everett Henry Schafer	E		Milwaukee, Wis.
Oswald John Schaefer			Ann Arbor
Robert Edward Schaefer	Ch		Detroit
Elon John Schantz	E		Ann Arbor
Ralph Harold Scheel	E		Detroit
George Milton Scheller			Buffalo, N. Y.
Henry Ripley Schemm	C		Saginaw
Charles Brund'ge Schermerhorn	M		Detroit
E. B. Schermerhorn			Stanton
Ernest William Schermerhorn	C		Cassopolis
Herbert Frederick Schiefer	C		Vassar
Charles Tompkins Schieman, Jr.			Arlington, N. J.
Norman Frederick Schlaak	E		Birmingham
Oren Henry Schlemmer	C		Ann Arbor
Stuart Roy Schmehl			Cleveland, Ohio
Cyril August Schmidt	M		Grand Rapids
Joseph Frank Schmiegel			Saginaw
John Vincent Schmitt	C		Adrian
Emil John Schmitz			Allegan
Waldemar Edward Schneider	C		Detroit
Frank Koch Schoenfeld			Toledo, Ohio
Ernest Winters Schouten	M		Cortland, N. Y.
Donald Peter Schrier	E		Kalamazoo
Clarence Karl Schroen	M		Ann Arbor
Arthur Schubring	M		Buffalo, N. Y.
Clarence Henry Schulz			Saginaw
Jack Josef Schwartz	C		Detroit
Donald Franklin Schweitzer	M		Three Rivers
Frank Fuller Scott	E		Ypsilanti
Lloyd Linton Scott	Ch		Detroit
Roland Gregory Scott	C		Detroit
Winford Greene Scott	C		Sandusky
Russell Spencer Scribner	M		Toledo, Ohio
Carl Gottfred Seasword			Muskegon
Herbert Franklin Seaver			Colon
Thomas James Seburn	C		Toledo, Ohio
James Sedita	M		Rochester, N. Y.

Harold Arthur Seel		Detroit
Joseph Seide	C	Flint
Claud Stewart Semar	C	Detroit
Boris Peter Sergayeff	M	Ann Arbor
Martin John Serra	E	Calumet
William Sestok	M	Detroit
Robert Walter Seymour	M	Chicago, Ill.
William Fletcher Sharp	E	Wolcott, N. Y.
Harold Cyrus Sharpe	E	Wolcott, N. Y.
Harold Trent Shaw	C	Detroit
Robert Corson Shaw	E	Templeton, Mass.
Ralph Franklin Shawaker		Toledo, Ohio
Charles Edwin Shepherd	M	Lafayette, Ind.
Elwyn Burton Sheppard	C	Lockport, N. Y.
Howard Augustus Sheridan	C	Toronto, Ont.
James Edwin Sherman		Defiance, Ohio
Rex Arthur Sherman		Jackson
Francis Cameron Shiel	C	Hillsdale
Richard Shore		Des Moines, Iowa
Rollin John Shouldice	M	Battle Creek
Ruf Shu	C	Soochow, China
Cornelius Joseph Shuttleworth	E	Pekin, Ill.
James Whitney Sibley, Jr		Detroit
Thomas David Sidwell		Port Jervis, N. Y.
Charles Raymond Sieder	Ch	Detroit
Kenneth McKinley Sifritt	E	Marion, Ohio
Bernard Gumpert Silberstein	Ch	Duluth, Minn.
George Joseph Silhavy	Ch	Saginaw
Paul Baker Silvernale		Menominee
Riley Jacob Sipe	Geod.&Surv.	Ann Arbor
Marshall Konopak Skadden	Ch	Danville, Va.
Sydney Raymond Skellenger	M	Gladstone
Edliff R. Slaughter	C	Louisville, Ky.
Ray Burdette Sloan		Lansing
Edward Alexander Smith		St. Thomas, Ont.
Ferris MacArthur Smith		Elmira, N. Y.
Francis Livingstone Smith	C	Los Angeles, Calif.
Henry Ambrose Smith	C	Ishpeming
Henry Frederick Smith		Buffalo, N. Y.
Jack Edward Smith	M	Sharon, Pa.
Marshall Edgar Smith, Jr.	E	Flint
Murray Monroe Smith	C	Detroit
Paul Albert Smith	Geod.&Surv.	Morning Sun, Iowa
Ray Wolcott Smith	C	Elmore, Ohio
Robert Frederick Smith	C	Saginaw
Russell Elroy Smith		Jackson
David Warner Smyser	C	York, Pa.
Paul Joseph Snell		Detroit
Arthur Milton Snider	C	Ann Arbor

Bassett Douglas Snider	C	Detroit
John Charles Soet		Grand Rapids
Lewis Soltysik	E	Hamtramck
Robert Harold Soule	Mar	Plainwell
Willard William Spanagel	E	Canton, Ohio
Frank Harold Spedding	Ch	Ann Arbor
Charles Hall Spelman		Adrian
Herbert Acton Spence	C	Saginaw
Willard Basil Spencer	M	Highland Park
Clifford Henry Spicer	C	Ann Arbor
William Allen Spindler	Ch	Essex, Ont.
Alan Rodger Spraker	E	Grand Rapids
Gilbert Leonard Stadtler		Chicago, Ill.
Erwin Jacob Staebler	C	Ann Arbor
George Mahon Stanley		Detroit
William Dana Starkweather	C	Hamburg, N. Y.
Leo Raymond Starr	E	Big Rapids
Garfield Alger Steadman	C	Pigeon
Arthur Irving Stecker		Buffalo, N. Y.
Irwin Ernest Stegmeier	M	Grand Rapids
Arthur Michael Stellwagen	M	Ann Arbor
Robert Henry Stellwagen	M	Ann Arbor
Orville William Stephens	C	Carbondale, Pa.
Robert Alden Stephens	Mar.	Sandusky, Ohio
Oliver Sterling, Jr.		Romeo
Wayne Correll Stetler	E	Jackson
Tyler Revere Stevens	Aero	Portland, Me.
Howard Richard Stevenson		Detroit
Gilbert John Stewart	C	Wellsville, N. Y.
Leslie Morris Stewart		New York, N. Y.
Roy Bright Stewart		Ann Arbor
Merritt Loud Stiles	C	Denver, Colo.
William Edward Stirton	E	Detroit
Oscar Adolph Stocker	Ch	Detroit
Edgar Walters Stoddard	C	Toledo, Ohio
Robert MacAdam Stoddard	M	Wilmette, Ill.
Arnold Elmer Stoll	M	Ann Arbor
Clifford Edward Stone	C	Buffalo, N. Y.
Harold Albert Storms	M	Chelsea
William Joseph Strasser	C	Buffalo, N. Y.
†William Henry Strickler, g	Ch	Womelsdorf, Pa.
Edward Heilman Strohm	E	Constantine
Leigh Edwin Strong	C	Rockford
Earl Frederick Strubb	C	Toledo, Ohio
Kenith Goodrich Strunk	Aero	Detroit
Stanley Emil Strunk	E	Detroit
Glenn George Studt	C	Grand Rapids
Ambalavettah Koltai Sukumaran		Palghat, India
John Donald Sullivan	C	Alma

Leland Taylor	Summers	Ch	Port Huron
Ralph Kenneth Super	M		Washington, D. C.
John Peter Sutter	C		Buffalo, N. Y.
Robert Rice Swain	E		Ann Arbor
Donald Miller Swan	Mar		Grosse Ile
Lamont Swanson	M		Falconer, N. Y.
William Clinton Sweeney			Russell, Pa.
John Emerson Sweitzer	Ch		Detroit
Arthur Swift			Muskegon
Fred Chester Swigert	M		St. Joseph
Edward Joseph Talaska	C		Ironwood
†Kwan Yan Tang, g	E		Honolulu, Hawaii
Milton Harold Tarloff			Detroit
Charles Edward Tarte, Jr.	M		Grand Rapids
Charles McDonald Taylor	E		Port Huron
Donald David Taylor	M		Signal Mount, Tenn.
James Donald Taylor			Mount Clemens
James Lee Taylor			Franklinville, N. Y.
Ralph Henry Taylor	C		Saginaw
Edward Dean Tebbetts			Detroit
†Pablo Simon Tecson, g	M		San Miguel, P. I.
Charles Paul Teeple	Ch		Ann Arbor
Ross Flinn Teets			Toledo, Ohio
Pedro Membrado Telmo	Mar		San Quentin, P. I.
James Kenneth Terry	C		Adrian
Kling Thithan	M		Chumpon, Siam
Floyd LaVerne Thompson	Aero		Salem
Franklin McCown Thompson	E		Roanoke, Va.
Horace Alvord Thompson	M		Herkimer, N. Y.
Milton John Thompson	Aero		Grand Rapids
William Scott Thompson	E		Elk Rapids
Thomas Daines Thurber	Ch		Birmingham
Leo William Tobin	M		Rochester, N. Y.
John Kenneth Tolford	Spl. C		Ann Arbor
Lewis Raymond Tower	E		Greenville
Lawrence Emerson Townsend,	C		St. Johns
†Richard Emory Townsend, g	Ch		Saginaw
Arthur John Trapp	E		Benzonia
Donald Earl Trefry	E		Kalamazoo
John Henry Trevorrow	E		Greenland
Lawrence Elmer Trippe	Ch		Utica, N. Y.
Richard Edward Triplehorn	Aero		Highland Park
Russell Hyder Trites	C		Detroit
Charles Edward Trout	M		Toledo, Ohio
Shannon James Troxel			Jackson
Hsien Neh Tseng	M		Tientsin, China
Shang-Hsiung Tsou	Ch		Wushih, China
Francis Farragut Tufts	E		Detroit
Gilbert Charles Turner	E		Coldwater

Howard Anderson Turner	M	Detroit
Bert Edward Uebele, Jr.	M	Chicago
Nels Arnold Ulseth	C	Detroit
Milo Elden Underhill		Munising
Richard Laskey Underwood	M	Detroit
Benjamin Ernest Unsoeld	Ch	Detroit
Lee Cole Updegraff	M	Alpena
Clarence Ure	C	Saginaw
George Kenneth Urschel	M	Bowling Green, Ohio
John Vaccariello	Ch	Cleveland, Ohio
Edward Eugene Vadakin	M	Owosso
George Valderrama	C	Bogota, Columbia
Lyle Stuart Van Antwerp	M	Grand Rapids
Tracy Henry Van Buren	M	Sturgis
Max Van de Greyn	C	Grand Rapids
Arie Van der Meulen	M	Pretoria, South Africa
Christian Gerard Van der Veen	C	Grand Rapids
Everett Jay Van der Veen	C	Grand Rapids
Henry Vandervoort	C	Muskegon
Robert Misson Van Duzer, Jr.		Bartlesville, Okla.
Harry Elton Van Every	C	Petoskey
William Nickolas Van Koughnet	C	Toledo, Ohio
Bertram Orlando Vannort	Ch	Federal Park, Md.
Harold Willard Van Norwick		Jackson
Derek van Osenbruggen	C	Whimbleton, England
†Harley Samuel Van Vleet, g	Ch	Tecumseh
Sylvan Van Vlerah	M	Ann Arbor
James Leon Van Vliet		Detroit
Richard Van Vliet	C	Grand Rapids
Jacob Van Zytveld	Ch	Grand Rapids
Murray Almon Varney	M	Detroit
Louis Adolph Vaupre	E	Kalamazoo
Edwin Henry Vedder	M	Milan
Clarence Arthur Vielmetti	E	Norway
Douglas Edward Vielmetti	M	Norway
Spiros Dionisio Vinieratos	Mar	Argostoli, Greece
John Vitol	M	Buffalo, N. Y.
Joseph Bernard Vlack	M	Cedar
Frederick Von Voigtlander		Jackson
James Putnam Vose	C	Ann Arbor
Joe Francis Votrobeck	M	Detroit
Benjamin Daniel Waechter	M	Detroit
Harvey Arthur Wagner		Ann Arbor
Edward Charles Wahl	E	Buffalo, N. Y.
Lester Edward Wahrenburg	M	Fort Wayne, Ind.
John Eaton Waldo		Kalamazoo
Edwin Witherby Walker	Aero	Brockport, N. Y.
Harry Carl Walker		St. Anne, Ill.
Jacob J. Walker, Jr.		Somerset, Pa.



Jerome Franklin Walker	C	Rochester, N. Y.
William Harry Walker	C	Coldwater
Robert Waller		Ann Arbor
Lyle A. Walsh	M	Ann Arbor
Donald Tubbs Waltz	C	Toledo, Ohio
Albrecht Gustav Wambach	E	Brooklyn, N. Y.
William Chi Wang	Spl. M	Peking, China
Yang Tseng Wang	C	Mukden, China
Donald Clark Ward	Ch	Chicago, Ill.
Henry Irving Ward		Syracuse, N. Y.
Walter Clark Wardner	Ch	Jackson
James Kennedy Wareham	C	Calumet
James Evert Wark	C	Palisades, Wash.
Floyd Trenbath Warmington	E	Highland Park
Daniel Sumner Warner		Pontiac
Frederic Wellington Warner, Jr.	Ch	Pontiac
John Powell Warner	C	Detroit
Seward Alger Warner	E	Ypsilanti
Vernon Edward Warney	C	Rochester, N. Y.
Harold Henderson Warnock	Ch	Detroit
Louis Burton Waterman	M	Elmore, Ohio
William John Watkins		Jackson
James J. Watson		Jackson
Robert Howland Wattleworth	M	Cleveland, Ohio
Ervin Harold Watts	M	Detroit
Spencer A. Weart	Ch	Cleveland, Ohio
Willis Weaver, Jr.	E	Lockport, N. Y.
Charles Robert Webb	M	Sturgis
Graham Webb	Spl. C	Asheville, N. C.
Roland Robert Webb	Spl. M	Los Angeles, Calif.
Willard Hyde Webb	C	Detroit
Hiram Mark Webber	M	Wrentham, Mass.
Willett Frank Weber	M	St. Joseph
George Edward Wedemeyer	E	Ann Arbor
Russell Stuart Weeks	C	Richmond
Ned Otto Wees	E	Durand
Herman Wegner	Ch	Alpena
Leon Joseph Weichel	M	Sandusky, Ohio
Frederick August Weihe, Jr.	Ch	Washington, D. C.
Herbert Louis Weil	C	Williston, N. Dak.
Nathan Weingarden	E	Detroit
Sandor Alexander Weiss	C	Detroit
Harry Aaron Weitman	E	Newark, N. J.
Quincy Winthrop Wellington, II	Ch	Corning, N. Y.
Leon Henry Wendel	C	Lockport, N. Y.
Ralph August Wenneker		St. Louis, Mo.
Emil Frederick Werly		Coopersville
Ralph Everett Wertz, Jr.	Ch	Casper, Wyo.
Ferdinand Leo Westheimer		Cincinnati, Ohio

Edwin Frederick Westover	Ch	Bay City
Raymond William Westphal	E	Saline
Walter Howard Whaling		Sharon Springs, N. Y.
John Francis Wheeler		Kalamazoo
George Allen Whinery	M	Grand Rapids
Richard Randolph Whipple	E	Ann Arbor
Maxwell Ludlum Whitacre	Ch	Madisonville, Ohio
Robert Lynn Whitaker	C	Marshall
Alfred McLaren White	Ch	Ann Arbor
Austin Ellis White		Chicapee, Mass.
Basil Edwin White	M	Grand Rapids
Earl Chester White	Ch	Windsor, Ont.
Henry Lockwood White	M	Cleveland, Ohio
Lewis Nicholas White, Jr.		Utica, N. Y.
Donald Mallo Whitesell	M	Three Rivers
Lawrence Harry Whitman		Ashtabula, Ohio
Chancy Frank Whitney	E	Ypsilanti
Alfred Mercer Whittemore	C	Middleton, Ohio
George Chappell Whittlesey	Mar	New London, Conn.
Edgar Richard Wightman	C	Ann Arbor
Ralph Adam Wike	Aero	Endicott, N. Y.
George Frederick Wilcox	C	Northville
Edward Everett Hale Wilde	E	Wakefield
Arthur Edward Wilkoff	M	Youngstown, Ohio
Curt Hesse Will	C	Saginaw
Arthur Glenn Willetts		Harmony, Pa.
Alson Freeman Willey		Grand Rapids
Marion Robert Williams	Ch	Detroit
†Oliver Frank Williams, <i>ed</i>		St. Louis, Mo.
Wendell Williams		Trenton, N. J.
Winfield Henry Willis	E	Saginaw
Donald Gifford Wilmarth		Grand Rapids
Frederick Earl Wilson	E	St. Thomas, Ont.
Howard Raymond Wilson	Ch	Highland Park
John Charles Wilson		St. Joseph
Thomas Herbert Wilson	Spl. C	Detroit
Duane S. Wiltse	M	Flint
Herbert Grant Winter	Aero	Detroit
Guy F. Winterrowd		Hot Springs, S. Dak.
Ernest Theodore Wise		Birmingham
Julian Thomas Wisniewski	Ch	Detroit
Clayton Joseph Wolf	C	Lima, Ohio
Howard Michael Wolf	M	Lima, Ohio
Leo Wolff	E	Brooklyn, N. Y.
Elmore Frederick Wollering		Detroit
Cedric Stephen Wood	C	Bloomington, Ill.
Grant Robert Woodford		Detroit
Fred Alexander Wright		Paragould, Ark.
Theodore Donald Wright	E	Detroit

Chufei Wu	M	Shanghai, China
Tso Ming Wu	Ch	Loating, China
Robert Paul Wuerfel	E	Ann Arbor
Eugene Jacob Wulfman	Ch	Port Huron
John Wyllie, Jr.	M	Detroit
Arthur Reynolds Wyman	M	Santa Barbara, Calif.
Wei Chi Yee	Aero	Chungking, China
Kung Hui Yeh	Spl. M	Tientsin, China
Shang-Neng Ying	Ch	Nanking, China
George Francis Yott	M	Midland
Clarence Helmick Young	E	Randolph, N. Y.
Herman Stone Young	C	Powlet, Vt.
Paul Nathan Young	E	Greensburg, Pa.
Robert Henry Young	C	Flint
Wei Han Yu	E	Dairen, China
Wilkie Yu	M	Kwangtung, China
William Wrigley Zahm		Waco, Texas
Lino Edward Zapata	Spl. M	Ann Arbor
Jose Enrique Zepeda	M	Guadalajara, Mex.
John Powell Zidow	M	New Castle, Pa.
Edward Francis Zielinski	M	Bay City
Arnold Bruno Zimmer	C	Sebewaing
John Sylvester Michael Zimmerman	C	Washington, D. C.
Donald Alva Zinn	C	Battle Creek
Frank Towsley Zinn	E	Battle Creek
Harry Edwin Zuck	M	Rockford, Ill.

**COLLEGE OF ARCHITECTURE**

Henry Jacob Abrams	AE	Ann Arbor
Robert James Aitken	AII	Sault Ste. Marie
Gustav Adolph Anderson	AE	Manistee
Norman Anderson	AII	Detroit
John Quayle Andrews		Muskegon
Davis Jerome Baer	AI	Pontiac
Ervin Bailey	AI	Ann Arbor
John Peter Baker	AII	Grand Rapids
Neil Kemler Barber	AE	Detroit
Margaret Millicent Barnum	AII	Wauwatosa, Wis.
John Harold Barry	AI	Portland, Conn.
Karl Jacob Belser	AI	Ann Arbor
Arthur Moore Bender	AE	Ann Arbor
Kate Benton	Spl. A	South Norwalk, Conn.
Otto Adam George Bernthal	AE	Bay City
Kenneth Chapman Black	AII	Lansing
Marion Frances Blood	AII	Grand Rapids
Lawrence Benjamin Blum	AI	Detroit
Charles Ernest Boardman	AI	Detroit
Henry Scripps Booth	AII	Birmingham
Donald DeWitt Boothby	AII	Benton Harbor

Frederick Wilkinson Bradley	AI	Detroit
Preston Comstock Brady	AE	Glen Cove, N. Y.
Edward James Brazley, Jr.	AE	Ann Arbor
Virginia Brown	AI	Harrisonburg, Va.
Erwin Louis Broecker	AII	Buffalo, N. Y.
Marion Buell	AII	Ypsilanti
Robert Fergus Calder	AE	Detroit
James Clark Camp	AE	Kearsarge
Lawrence James Campbell	AI	Frankfort
Harold Smith Cassidy	AII	Canton, Ohio
Primitivo Castrillo	AE	La Paz, Bolivia
Wing Gee Chan	AII	Hong Kong, China
Henry Gotthold Christman, Jr.	AE	South Bend, Ind.
Eugene Truesdale Cleland	AII	Poland, Ohio
Charles Dickinson Cogshall, Jr.	AI	Ann Arbor
Joseph James Cohen	AE	Detroit
Lyle S. Cole	AII	Mount Pleasant
Ernest Marshall Collette	AII	Detroit
Horace Glenn Colwell	AII	Detroit
Arthur Ray Cook	AE	Milan
Harrison Lyman Cook	AE	Detroit
Charles Austin Coolidge	AI	Cleveland, Ohio
James Edward Cooney	AE	Salamanca, N. Y.
Julian Raymond Cowin	AII	Greenville
Fred Alexander Cuthbert	AII	Ann Arbor
Frederick Zurfuh Dahn	AII	Toledo, Ohio
James Dale Darling	AE	Highland Park
Frank Berlin Davenport	AII	Battle Creek
Victor Manuel del Valle	AE	San Juan, P. R.
Ensign David De Voe	AI	Batavia, N. Y.
Peter De Vos	AI	Grand Rapids
Thomas Clifford Dickinson	AII	Alpena
John Ekin Dinwiddie	AII	Berkeley, Calif.
Harold Dean Dollinger	AII	Detroit
Taneta Victoria Doster	AI	Ann Arbor
Frank John Dritler	AE	Jackson
Donald Burr DuBois	AII	Mason
Russell Eugene Duncan	AE	Highland Park
Claud Dale Dykema	AE	Grand Rapids
†Laura Louise Eckert, g	AI	Detroit
Franklin John Edic	AII	Toronto, Ohio
Edwin Charles Edmunds	AII	Medina, N. Y.
Dorothy Catherine Margaret Eggert	AII	Saginaw
Livingstone Hunter Elder	AII	Tidioute, Pa.
Joseph Clarence Ellis	AII	Ann Arbor
Ellsworth Earl Ellwood	AE	Wyandotte
Seth Harrison Ely, Jr.	AII	Dover, N. J.
Alex Kyriacos Eugene	AII	Ann Arbor
Lewis Jerome Evans	AE	Niles

†Arthur Lewis Evely, a	AI	Pontiac
John Willis Fish	AI	Grand Rapids
Roy John Fleming	AE	Jackson
Clayton Lot Foster	AE	Detroit
Carl Jacob Freiwald	AE	Detroit
Joseph Eustace Fronczak	AII	Buffalo, N. Y.
Barry Lewis Frost	AE	Jackson
Philip Jonas Funke	AII	Detroit
Cornelius Leighton Twing Gabler	AII	Sarnia, Ont.
Leon Vernon Gibbs	AII	Kalamazoo
Donald Henry Goldsmith	AII	Ann Arbor
Victor Tristan Gondos, Jr.	AII	Philadelphia, Pa.
John Gordon	AE	Ann Arbor
Lawrence Arnold Graf	AI	Jackson
Orin Herman Gray	AE	Muskegon
George Foreman Green	AII	Detroit
Orrin Kendrick Griffith	AII	Mount Clemens
August William Gross	AI	Milwaukee, Wis.
Clayton Richard Haden	AE	Highland Park
Thomas Erle Hadley	AE	Holly
Oscar Carl Halberg	AII	Waterbury, Conn.
Harry Nels Halgren	AII	Escanaba
Theodore Buchanan Hanna	AE	Detroit
Donald Culver Hansen	AII	Lansing
Frederick McLeod Harley	AII	London, Ont.
Florence Augusta Harnau	AII	Muskegon
Jean Clare Harrington	AE	Albion
†Gerald Eugene Harrison, a	AE	Detroit
Charles Preston Hayes	AE	Ludington
William Daniel Herrera	AII	Washington, D. C.
Walter Fred Hespelt	AE	Chester, Mass.
Philips William Holmes	AE	Ann Arbor
Alberta Pauline Horton	Spl. A	Ann Arbor
Paul Sylvester Hosman	AE	Petosky
Richard Campbell Hoyt	AII	Detroit
Alderrick Peter Hubert, Jr.	AII	Menominee
Louis Baldwin Huesmann	AE	Ann Arbor
Edward Irving Hull	AII	St. Johns
Mary Brewster Hunt	AII	Grand Rapids
Arthur Knox Hyde	AI	Detroit
Frank Walton Jackson	AII	Manilla, Iowa
Conrad Sankey Johnson	AII	La Porte, Ind.
George Maceo Jones	AE	Detroit
Frederick Burr Joslin	AII	Big Rapids
Emil Max Kaiser	AE	Ludington
John Ichiro Kawasaki	AI	Tokio, Japan
†Vaughn Elizabeth Kezartee, a	AE	Battle Creek
Leroy Earl Kiefer	AI	Detroit
Gertrude Kiekintvelt	AE	Grand Rapids

†Andrew William Klein, a	AE	Detroit
Edward Lawrence Kline	AII	Kalamazoo
Robert Alfred Kowsky	AE	Rockford, Ill.
Carl Conrad Kressbach	AE	Monroe
Armin Charles Landeck	AII	Toledo, Ohio
Charles Rodney Lawrence	AI	Yates City, Ill.
Willard Sumner Lawrence	AII	Warren, Ohio
Joseph Pulmer Leach, Jr.	AE	Canonsburg, Pa.
Philip Francis Leslie	AII	Toledo, Ohio
Arthur Chickering Litheredge	AII	Casper, Wyo.
Merrel Elgin Locke	AE	Petoskey
Douglas Dean Loree	AII	Ann Arbor
George Harlow Lounsberry	AE	Duluth, Minn.
Leslie Morris Lowery	AE	Detroit
Samuel Guy Ludington	AE	Yale
†Samuel Jesse Lukens, a	AI	Clearfield, Pa.
Harald Lund	AE	Palos Park, Ill.
Alexander MacGregor	AI	Detroit
Wilfred Perrell McLaughlin	AII	Niles
Verda Jane MacNamee	Spl. A	Ann Arbor
John Edward Mackel	AE	Los Angeles, Calif.
Harry Edward Maidt	AE	Oklahoma City, Okla.
Alden Stuart Marvin	AII	South Haven
Harold Vernon Maurer	AI	South Bend, Ind.
Solomon Charles Marx	AE	Newark, N. J.
George Byron Mellen	AE	Quincy
Carl Edgar Meyer	AE	Milwaukee, Wis.
Earl Gustave Meyer	AII	Ann Arbor
Kenneth Adam Michel	AII	Gibsonburg, Ohio
Eric Charles Mildner	AE	Detroit
Charles Taylor Miller	AE	South Bend, Ind.
James Thomas Mitchell	AE	Detroit
Clyde Harry Moore	AII	St. Louis, Mo.
Robert Thomas Moore	AE	Bellevue, Ohio
Gretchen Elaine Mullison	AE	Ann Arbor
Errol Lamar Myers	AI	Detroit
Harold Frederick Naser	AII	Pittsburgh, Pa.
Charles Edward Neil	Spl. A	Ovid
Ernest Neitzer	AII	Cleveland, Ohio
Reinhold Ernst Oester	AII	Detroit
Alves Deeds O'Keefe	AE	Plymouth, Ind.
Lawrence William Oliver	AII	Three Rivers
Karl Silverin Olsen	AI	Manistee
James Phillips Owen	AII	Benton Harbor
Shirley Leland Owens	AII	Ypsilanti
Walter Joseph Peca	AII	Rochester, N. Y.
Leo Irwin Perry	AI	Durand
Harold McCalmont Philpott	AII	New Castle, Pa.
Harold Edward Pine	AE	Detroit

Howard Lawrence Preston	AI	Pontiac
William Ensign Preston	AII	Cleveland, Ohio
Milton Edward Proutt	AI	Detroit
J. Russell Radford	AE	Lansing
Willoughby Roderick Ralston	AE	Detroit
Dean Willard Rankin	AE	Monmouth, Ill.
Norman Frederick Rearic		Jackson
Kathleen Eyer Rettenmeier	AII	Detroit
Gilbert Thomas Richey	AII	Greensburg, Ind.
†Florence Bell Robinson, g	AI	Ann Arbor
Abner Leech Roe	AI	Washington, D. C.
Edgar Hugh Roper	AE	Monclova, Ohio
Burdell James Rosborough	AII	Endicott, N. Y.
Herbert Louis Rosenblum	AII	Gladstone
Donald Munroe Ross	AI	Port Huron
Frank Weston Rowe	AE	Wyoming, N. Y.
Roman Charles Rudolph	AII	Fredonia, Wis.
Frank Joseph St. Amour	AII	Detroit
Maurice Samuely Salamon	AE	Detroit
Albert Leslie Sargent	AE	Royal Oak
Earl Phelps Sawyer	AII	Redford
Frederick John Schoettley	AI	Toledo, Ohio
Roland Karl Schuholz	AII	Detroit
Carl Henry Schwenkmeyer	AI	Ann Arbor
Wilfred Gordon Sellars	AE	Detroit
Joseph Shara	AI	St. Joseph
Gordon Ammon Sheill	AE	Detroit
Lawrence Clair Sheppard	AE	Marlette
Philip Todd Sherman	AII	Defiance, Ohio
†Lucinda Jane Sherwood, a	AI	Grand Haven
Wilson Stuart Sherwood	AE	Erie, Pa.
Leslie Cecil Shoemaker	AE	Niles
Verne Humphrey Sidnam	AI	Kalamazoo
Stanley Gibson Simpson	AI	Grand Ledge
•Chester Asa Sirrine	AII	Allegan
Ralph Camburn Smith	AII	Ann Arbor
John Harper Spencer	AII	Detroit
Stephen James Stachowiak	AII	Buffalo, N. Y.
Hugo Leonhard Stanger	AE	Ann Arbor
Herbert Reynolds Stanley	AI	Ann Arbor
Paul Starrett	AE	Winnetka, Ill.
Albert Alan Stewart	AII	Fowlerville
Augusta Stewart	AII	Philadelphia, Pa.
Alva Jay Stilwell	Spl. A	Dowagiac
Marcus Jackson Stith	AI	Detroit
Jons Robert Ferdinand Swanson	AII	Lansing
Frederick James Tetreau	AE	Redford
Walter R. Thompson	AII	Muncie, Ind.
Dole Ford Thomson	AII	San Francisco, Calif.

Walter Ernest Thulin	AII	Detroit
Paul Tilds	AI	Detroit
Wayne Ellington Tolford	AII	Ann Arbor
Alexander Linn Trout	AII	Ann Arbor
Herman Arthur Tucker	AE	Detroit
William Archibald Turnbull	AII	Brantford, Ont.
Leslie Van Doren	AII	Casper, Wyo.
Gardiner Chandler Vose	AII	Ann Arbor
Donald Burt Ward	AII	Detroit
Ray Fredrick Ward	AII	Pontiac
Donald Gates Warren	AE	Ann Arbor
Milton William Warren	AI	Detroit
Gaylord Arthur Watts	AI	Owosso
Herbert Prosser Watts	AI	Adrian
Raymond Weber	Sp. A	Detroit
Philip Duke West	AII	Plainesdale
Lewis Malcolm Wetzel	AII	Windsor, Ont.
Manfred Gould Whittingham	AE	Detroit
Oscar Frederick Wild	AE	Ann Arbor
Hudson Day Willse	AII	Westfield, N. Y.
Earl Frederick Wollen	AII	Utica, N. Y.
Raymond Linton Woolley	Sp. A	Detroit
Eva Alice Wright	AE	Grand Blanc
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Jake W. Hobeck	Kalamazoo
Bruce Vinton Hoyt	Saginaw
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Robert Edward Martin	Flint
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Vance Reynolds Dyer	Detroit
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 Flint  
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 Jackson  
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 Lansing  
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 Detroit  
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 Francis A. Scott, B.S.  
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## STUDENTS\*

### RESIDENT PRACTITIONERS

Charles Abram Groomes, M.D.	Marine City
Herbert Olander Westervelt, M.D.,	
Frank Elmer Cameron, M.D.	Benton Harbor

### FOURTH YEAR STUDENTS

Vernon Clifford Abbott	Shepherd
John Alison, Jr.,	Holyoke, Mass.
Eugene Ellis Alston, A.B. <i>Lincoln Univ.,</i>	Wilmington, N. C.
Lavin Milford Andersen	Manistee
Harold Herman Ash	Detroit
Joshua E. Bacon	Ann Arbor
John McGregor Barnes	Washington, D. C.
Joseph Ernest Barrs., A.B., <i>Acadia University</i>	Wolfville, Nova Scotia

\* A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or part of the year in another School or College of the University, indicated by an italic letter following the name, to-wit: *a*, College of Literature, Science, and the Arts; *e*, College of Engineering; *ea*, College of Architecture; *ed*, School of Education; *l*, Law School; *p*, College of Pharmacy; *d*, College of Dental Surgery; *g*, Graduate School. The letter following the name (without the dagger), indicates that the student is pursuing a combined curriculum, leading to a degree in each of the two.

LaMott Fair Bates, B.S.	Durand
Willard Gould Beattie	Highland Park
Sydney Knoppon Beigler	Detroit
Winefred Biethan, B.S.	Blackfoot, Idaho
John Stanley Boyer, B.S., <i>Univ. of Notre Dame</i>	South Bend, Ind.
Andrew Herbert Bracken	Lockport, N. Y.
Robert Stevens Breaky, B.S.	Ann Arbor
Arthur John Brickbauer	Elkhart Lake, Wis.
Harold Joseph Bri-bois	Detroit
Louis Albert Brunsting	Grand Rapids
James Valentine Campbell	Ann Arbor
Cyril Markham Canright, A.B., <i>Ohio Wesleyan Univ.</i>	Royal Oak
Harvey Llewellyn Clarke, Jr.	Fairbury, Neb.
Daniel Eugene Cohn	Detroit
Carroll Kenneth Cook	New London, Iowa
Harold D. Crane	Owosso
Clarence Harrison Crego, Jr., B.S., <i>Union College</i>	Jackson, Tenn.
Michael Jay Crino	Rochester, N. Y.
Donald Eugene Dement, A.B., <i>Univ. of California</i>	San Diego, Calif.
Dean Copeland Denman	Helmer, Ind.
Werner William Duemling	Fort Wayne, Ind.
Martha Emily Dyer, B.A., <i>Washington University</i>	St. Louis, Mo.
Robert Roy Eckert	Cooks Falls, N. Y.
Joseph Henry Failing	Ann Arbor
Milton Sol Feldman	Detroit
Martin Feldstein	Detroit
Raymond Griffin Finnie	Frankfort, Ky.
Francis James Fitzpatrick	Alpena
Norman Kenneth Foley	Toledo, Ohio
William Lloyd Foust, B.S., <i>Heidelberg University</i>	Tiffin, Ohio
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Harold Arthur Furlong	Pontiac
Ray Olson Gilbert, B.S., <i>Univ. of Minnesota</i>	Duluth, Minn.
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Melville Ai Goldsmith, B.S., <i>Fargo College</i>	Fargo, N. Dak.
Hugh Ellison Gray, B.S., <i>Univ. of Alabama</i>	Ohatchee, Ala.
George Francis Green, B.S.	Dowagiac
Henry Greenfield	Buffalo, N. Y.
Joseph Frank Hackett, B.S.	Detroit
Geraldine Mae Hamilton, A.B., <i>Kalamazoo College</i>	Battle Creek
Hugh Wesley Harrison	Detroit
Vernon Lewis Hart	Huron, Ohio
Joseph Kilgore Heckert, B.S., <i>Grove City College</i>	Bakerstown, Pa.
Jacob Helms	Grand Rapids
Louis Peter Henkel, A.B.	Petoskey
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Alton Deane Hobbs, B.S., <i>St. Lawrence University</i>	Ogdensburg, N. Y.

Howard Bostwick Hoffman	Ludington
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William Francis Hoover	Lockport, N. Y.
Charles Maxwell Hower	Bloomsburg, Pa.
Marion Arnold Hunter	Dominion City, Man.
Austin Samuel Johnson	Ann Arbor
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Philip Katz	Toledo, Ohio
Walter Glenn Kilbury	Bradford, Pa.
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Mark Gordon Kliatshco	Brooklyn, N. Y.
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Frank Deo Linn, A.B., <i>Albion College</i>	Albion
Gien Tsiu Liu, A.B., <i>Gingling College</i>	Peehsien, China
Putman Crocker Lloyd, A.B., <i>Harvard Univ.</i>	Ann Arbor
Perrin Hamilton Long	Bryan, Ohio
Raphael William McGregor, B.S.	Birch Run
Walter Fitch Manley, A.B.	Corry, Pa.
Rupert Clarence Laurberg Markoe	Frederiksted, V. I.
Morris Hyman Marks, B.S.,	Detroit
Irene Lula Martin, B.Pd., <i>Michigan State Normal College</i>	Homer
William Peter Martzowka	Saginaw
Wesley H. Mast, A.B., <i>Northwestern College</i>	Sebewaing
Charles Carson Merkel	Ann Arbor
Harry Clarence Metzger	Detroit
Ida Metzger, A.B., <i>Manchester College</i>	Strathmore, Calif.
†J. Duane Miller, g	Bangor
Clarence Dewey Moll	Detroit
Robert Thornhill Monroe, A.B.	Detroit
John Adam Mooney	Curtllsville, Pa.
Justin Loeb Mooney, B.S.	Kansas City, Mo.
Russell Lowell Mustard, B.S.	Milland
Manville William Norton	New Albany, Pa.
Clyde John Osborne	Benton Harbor
Tom Outland	Fort Wayne, Ind.
†Carleton Barnhart Peirce, g, A.B.	Galesburg, Ill.
Robert Harry Phillips, A.B., <i>Ohio State University</i>	Springfield, Ohio
George Francis Price	Brooklyn, N. Y.
Jesus Maria Quinones, Jr.	Santurce, P. R.
Howard Carl Rees	Risingsun, Ohio
Leo Peter Rennell	Manistee
Earl Bradford Ritchie	Jackson
Frederic Lawrence Robinson, B.S.	Ann Arbor
Arthur Martin Rosenthal	Flint
Saul Rosenzweig	Detroit
Kameyo Sadakata	Kamijamo, Japan

Curt Alfred Paul Schneider, B.S.	Peru, Ill.
Norman Charles Schroeder	Mt. Clemens
Robert Redvers Scott	Copemish
Yuen Sang Seto, B.S.	Detroit
William Joseph Sheridan, Jr.	Chattanooga, Tenn.
Richard Siersema	Grand Rapids
Selmer Pareli Smiseth	Suttons Bay
Hewitt Smith	Lansing
Clarence Hubert Snyder, B.S., <i>Greenville College</i>	Greenville, Ill.
Ruth Catheryne Snyder	Rockport, Ind.
Lloyd Green Steiner	Mount Cory, Ohio
Edward Alva Stern	Detroit
Edgar McLean Stevenson	Bloomington, Ill.
Ralph TenHave, A.B., <i>Hope College</i>	Zeeland
Clark Holland Thompson, A.B.	Detroit
Richard Henry Thornbury	Arcade, N. Y.
Chen Lang Tung, A.B., <i>Shanghai University</i>	Chekiang, China
Dale VanDuzen, B.S., <i>Alma College</i>	Breckenridge
Earl Newell VanOrnum, A.B.	Iron River
Eugene Robinson Vernou	Ann Arbor
Raymond Walter Waggoner	Ann Arbor
Rogers Fairbanks Wakefield	Detroit
Sydney Leon Weinberg	Detroit
Gustave Frankel Weinfeld	Lima, Ohio
Ulysses Simpson Wiggins, A.B., <i>Lincoln Univ.</i>	Andersonville, Ga.
Clarence Jay Williams	Eaton Rapids
George Wesley Williamson, A.B.	Indianapolis, Ind.
Abbott Louis Winograd, A.B.	Nashua, N. H.
Shelby William Wishart	Deadwood, S. D.
William Cale Wright, A.B., <i>Wabash College</i>	Terre Haute, Ind.
Joseph Wruble, A.B.	Detroit
Nona Wyatt	Santa Paula, Calif.
Charles Bogardus Zipf, B.S.	Freeport, Ill.

## THIRD YEAR STUDENTS

Hugo Adolph Aach	Kalamazoo
Max Abramson	Detroit
Retla H. Alter	Rushville, Ind.
Samuel Simon Altshuler, A.B.	Detroit
Daniel George Arnold	Tiro, Ohio
Robert Huntington	Detroit
Bennett Franklin Avery	Ann Arbor
Morris Eugene Bachman	Portland, Ore.
L. Grant Baldwin, Jr.	Brooklyn, N. Y.
Samuel Barmak, A.B.	Mohilev-Podolsk, Russia
Walter Merritt Bartlett	St. Joseph
Byron Lee Basinger, A.B., <i>Bluffton College</i>	Bluffton, Ohio
Louis Dunster Becker	South Haven
David Lynn Beers	Youngstown, Ohio



Karl Mathias Beierlein, A.B.	Fort Wayne, Ind.
Robert William Benner, A.B., <i>Heidelberg University</i>	Tiffin, Ohio
John Hamlin Besancon	Detroit
Theodore Liston Bliss, B.S., <i>Kenyon College</i>	Sandusky, Ohio
Francis Isabelino Blo'se	Guayama
Abraham Brookstein	Detroit
Malcolm Graham Bourne	Salamanca, N. Y.
James Michael Bowers, A.B.	Dayton, Ohio
John Philip Brady	Kalamazoo
George Marion Brown	Chicago, Ill.
Irmel Willis Brown, A.B., <i>Albion College</i>	Otsego
John Joseph Burby, B.S.	Benton Harbor
Ernest Charles Burhan, B.S.	Lansing
Ethel Thirza Calhoun, A.B., <i>Western Reserve University</i>	Canton, Ohio
Horace Neil Calkins, B.S., <i>Alma College</i>	Sebewaing
Charles Stilwell Capp, B.A., M.A., <i>Univ. of Calif.</i>	San Francisco, Calif.
James Ezra Caraway, B.S., <i>Greenville College</i>	Ann Arbor
George Millard Childs	Norwalk, Ohio
Chester Wellington Chinn, Ph.B., <i>Brown University</i>	Riverside, R. I.
James Francis Clancy	La Salle, Ill.
Francis Joseph Clark	Menominee
Glendon Twilley Clements	Howell
Edgar George Cochrane, Ph.B., <i>Brown University</i>	Providence, R. I.
David Harold Condit	Walla Walla, Wash.
Robert Ulsh Cooper, M.A., <i>Clark University</i>	Middletown, Md.
Leo John Croll	Windsor, Ont.
Arthur Covell Curtis	Jackson
David Danenberg	Martin's Ferry, Ohio
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George Henry Davis	Detroit
James Henry Delaney	Erie, Pa.
John Harris Dent, Jr., A.B., <i>Morehouse College</i>	Atlanta, Ga.
Chester Alfred Dewitt	Spring Lake
Paul Walter Du Bois, <i>Univ. of North Dakota</i>	Alma
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Charles Corydon Eades	Conneaut, Ohio
Amy Harriet Edmands, A.B., <i>Middlebury College</i>	Island Pond, Vt.
Louis Joseph Eisenberg	Detroit
Samuel Harold Eisenberg	Detroit
David Victor Elconin	Detroit
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Abe Alvin Fisher, B.S., <i>West Virginia Wesleyan College</i>	Canton, Ohio
John Vincent Fopeano, A.B., <i>Emory &amp; Henry College</i>	Konnarock, Va.
Wilbur Whitney Fosget	Lansing

George Friedman, A.B., <i>College of the City of New York</i>	New York, N. Y.
Maurice Frocht	Detroit
Carl Hatcher Fry, A.B., <i>Hiram College</i>	Milan
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Henry Fredetick Graff, A.B., <i>Marietta College</i>	Parkersburg, W. Va.
George Proudfoot Graybiel, B.S.	Caledonia
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Isadore Gustov	Detroit
Robert Francis Hague	Greenville
Frank Coleman Hamm	Fairbury, Neb.
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Donald Frank Hoyt	Battle Creek
Burton Edward Long Hyde	Detroit
George Warren Hyde	Detroit
Stanley William Imerman	Detroit
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Frank Donald Johnson	Marion
Lester J. Johnson	Ann Arbor
Vernon Paul Johnson	Iron Mountain
John Gray Jones	Vickeryville
Roland Edwin Kalmbach	Chelsea
Herman Kanter	Detroit
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Alpha Rees Klopfenstein	Toledo, Ohio
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John Joseph McCarthy	Findlay, Ohio
Stuart Alexander McCormick, B.S., <i>Univ. of Wis.</i>	Madison, Wis.
Oliver B. McGillicuddy	Lansing
Robert Bruce McIndoe	Pitcairn, Pa.
Kenith Smith McIntyre	Hastings
Mary Campbell McIntyre, A.B., <i>Western Reserve University</i>	Columbus, Ohio
John Page McLachlin	Petersburg
Harold Carl Mack	Detroit
David Marvin Marcus	Detroit
Webster Churchhill Martin, Jr.	Scottville

Thomas Harrop Miller, A.B.	Detroit
Samuel Millman, B.S., <i>New York University</i>	Brooklyn, N. Y.
Thomas Gresham Mitchell	Auburn, N. Y.
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Moe Nissenbaum	Detroit
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Albert Russell Parker	Grand Blanc
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Cecil Leroy Penoyar	South Haven
Benjamin Phillip Persky, A.B., <i>Baldwin-Wallace College</i>	Cleveland, Ohio
Clarence John Poppen	Holland
Francis Samuel Porretta	Lockport, N. Y.
Hervey Burson Porter	Los Angeles, Calif.
Eugene Breckenridge Potter	Lakewood, Ohio
Lambert Philip Rahm	Iron Mountain
†William George Rebec, A.B., <i>g</i>	Ann Arbor
John Ritsema	Kalamazoo
Julian Joseph Rucker	Elberton, Ga.
Hector Joseph St. Amour	Cheboygan
Harry Wolfe Salon	Fort Wayne, Ind.
Jerome Howard Samuel	Newark, N. J.
Alexander Wolf Sanders	Detroit
Herman David Scarnechia	Detroit
Charles John Scavarda	Bessmer
Ferdinand Ripley Schemm	Saginaw
Augustine John Schenden, A.B.	Greenville
Theophil Ernest Schmidt, A.B., <i>Univ. of Rochester</i>	Warren
Adolph Albert Schmier	Detroit
Robert Francis Schultz, A.B.	Ypsilanti
Francis Axtell Scott, Jr.	Rochester
Stanley Harry Skrentny	Indiana Harbor, Ind.
Edwin Merle Smith, B.Pd., A.B., <i>Michigan State Normal College</i>	Ann Arbor
Benjamin Richard Springborn	Cleveland, Ohio
Bert Spurrier	Detroit
Arthur Harvey Steele	Ann Arbor
Donald Blanchard Stouffer	Steelton, Pa.
Henry David Stricker, A.B.,	Detroit
Homer Hartman Stryker	Athens
Alfred Downing Summers	Ossian, Ind.
Clifford Anders Swanson	Marquette
Frank Irving Terrill	Great Falls, Mont.
Arthur Benjamin Thomas	Knox, Pa.
Fred R. Thomas	Carnegie, Pa.

Marcus Baker Tidey	Grand Rapids
Frank Marion Townsend	Grand Rapids
Richard Churchill Travis, A.B.	Indianapolis, Ind.
Joseph Jerome Trombley, Jr., A.B.	Detroit
Vincent Joseph Turcotte	Mt. Clemens
Wilbert Leslie VanSickle	Barryton
Herbert Northrup Wallace, A.B., <i>University of Rochester</i>	Rochester, N. Y.
Wilma Charlotte Weeks, B.S., <i>Kalamazoo College</i>	Kalamazoo
Brent Alphonzo Welch, A.B., <i>Miami University</i>	Sydney, Ohio
John Otto Wetzel, Ph.G., <i>Valparaiso University</i>	Gary, Ind.
Tryphosa Rosalette Worcester, B.S., <i>Simmons College</i>	Manchester, N. H.
August Karl Zinn	Battle Creek

## SECOND YEAR STUDENTS

Philip Densmore Amadon	Port Huron
Norman Herman Amos	Aberdeen, S. Dak.
Sherman Ellis Andrews	Marcellus
Kenneth Belknap Babcock	Detroit
Frederick William Bald	Detroit
Frederick Marner Barbas	Detroit
Helen Sarah Barnard, Ph.B., <i>Univ. of Vermont</i>	Pittsford, Vt.
Franklin Walter Baske	Lansing
George Russell Beck	Detroit
Sidney Seelig Berke	Detroit
Meyer Samuel Berman, B.S., <i>College of the City of New York</i>	New York, N. Y.
Robert Berman, A.B.	Detroit
Irving Bernstein	New York, N. Y.
Grace Merriam Beshgetoor	Alma
Nellie Berneta Block	Tustin
William Lawrence Bonham, a	Hobart, Okla.
Hyman Bernard Braitman	Detroit
Esther DeYoe Brenneman, A.B.	Harrisburg, Pa.
Ervin J. Brenner	Detroit
John Dewey Bryce, A.B., <i>Indiana State Univ.</i>	Martinsville, Ind.
John Clifford Bugher, A.B.	Upland, Ind.
Ward Lakie Chadwick	Grand Rapids
Harold Chatlin, A.B.	Detroit
†Vance Allen Christian, g	Roxbury, Va.
Robert Russell Clark, a	Conoquenessing, Pa.
Wilbert Tyde Claxton	Churubusco, Ind.
Edwin Horace Coachman, Jr.	Blakely, Ga.
Robert Joseph Cooper	Detroit
Goldie Brita Corneliussen	Ishpeming
Andre John Cortopassi	Demmon
Elmo Gregory Crabtree, Jr.	San Diego, Calif.
Monroe Crawford, A.B.	Flint

Harold Orris Crosby	Findlay, Ohio
Thomas Folger Cushing, A.B.	Elyria, Ohio
Paul Ragnar Dahlberg	Ann Arbor
Guy DeBoer, <i>a</i>	Detroit
Caesar DeGiustino	Detroit
Jose Altez Enriquez	Atimonan, Tayabas, P. I.
Baxter Beach Fair, <i>a</i>	Durand
Stephen Fairbanks	Luther
John Ulrich Fauster, Jr.	Defiance, Ohio
Irving Everett Fink	Newark, N. J.
Frederick John Fischer	St. Clair
Clyde Reuben Flory, A.B., <i>Lehigh Univ.</i>	Edelman, Pa.
Southard Tolchard Flynn, A.B., <i>Univ. of California</i>	East Lansing
Carl Hale Fortune, A.B., <i>Transylvania College</i>	Lexington, Ky.
John Freedman	Detroit
Salvador Trevino Garcia	Parras, Mex.
Carl Lewis Gillies	Hartford
Murray Eugene Goodrich	Goodrich
Albert Fremont Gregg	Connorsville, Ind.
Frederick Richard Harper, <i>a</i>	Helena, Mont.
Anna Luvern Hays	Enid, Okla.
Earl Augustine Heilner	Toledo, Ohio
Russell J. Himmelberger	Lansing
Charles Leonard Hirwas, <i>a</i>	Ishpeming
Henry David Holmes	Cambridge, Jamaica, B. W. I.
Ralph George Hubbard	Detroit
Barney Benjamin Israel	Detroit
Sigmund Aloysius Janowski	Detroit
Haig Haigouni Kasabash	Detroit
Morris Raymond Keen, A.B., <i>Johns Hopkins Univ.</i>	Brooklyn, N. Y.
Doris Kendrick, A.B., <i>Smith College</i>	Provincetown, Mass.
Howard James Kerr, <i>a</i>	Newport, Ohio
John Henry Kilgus, A.B., <i>St. John's College</i>	Brooklyn, N. Y.
Norman Rudolph Kretschmar, <i>a</i>	Detroit
Kypo Marco Kyprianides, A.B., <i>Anatolia College</i>	Detroit
Nicholas Eugene Lacy	Kansas City, Mo.
James Verle Lammy	Detroit
Floyd Heaton Lashmet	Manchester, Ill.
John Lawkowitz	Erie, Pa.
Latham Barnum Lawton	Traverse City
Meyer Mitchell Levin, A.B.	Detroit
Charles Lynn MacCallum	Midland
Dorothea Frances McClure, <i>a</i>	Altoona, Pa.
John Russell MacGregor	Ann Arbor
Franc's Lachlan McPhail, A.B., A.M.	Detroit
Colin Christopher McRae, <i>a</i>	Cass City
William Addison MacVey	Franklin, Pa.
Herman Matthew Maveety	Cincinnati, Ohio
Joseph Jules Michaels, <i>a</i>	Detroit

Waldemar Bruey Mitchell	Elk Rapids
James Alvin Morley, B.S.	Rochester, N. Y.
Joseph Laughlin Mountain, <i>a</i>	Olean, N. Y.
Howard James Murphy	Toledo, Ohio
Clifton Gustavus Myer	Genoa, N. Y.
James Marston Nelson	Spokane, Wash.
Ralph Edward Netzley, A.B., <i>Laverne College</i>	Pasadena, Calif.
John Hatcher Nichols	Wapakoneta, Ohio
Mervyn Millard Nickels	Ann Arbor
Robert Bernard O'Brien	Ann Arbor
Charles Eugene Osborne, Jr.	Grand Rapids
Dolson William Palmer	Rosalie, Wash.
Henry George Poncher	Chicago, Ill.
Edward Reuben Rabinowitz	Detroit
Omer Charles Rathman	Jamestown, N. Dak.
Lou's Andrew Richter	Detroit
John Robboy, A.B., <i>Western Reserve Univ.</i>	Cleveland, Ohio
Samuel Perry Rogers, A.B., <i>Bucknell Univ.</i>	Jeffersonville, Pa.
John Rosenfeld	Detroit
Aaron Rosenzweig	Detroit
Ehrhardt Ruedemann	Albany, N. Y.
Sarkis Der Sarkissian, A.B., <i>International College, M.S., Michigan Agricultural College</i>	East Lansing
†Nathan Henry Schlafer, <i>a</i> , A.B.	Detroit
Paul Guy Schrier, B.S., <i>Kalamazoo College</i>	Kalamazoo
Alfred Louis Schultz, A.B.	Moline, Ill.
Joseph Kievel Schwartz	Detroit
Louis Adrian Schwartz, <i>a</i>	Cleveland Heights, Ohio
Archie Louis Seiferlein	Detroit
Lowell Sinn Selling, A.B.	Detroit
Paul Just'n Shank	Trotwood, Ohio
Joseph William Shaw	Spokane, Wash.
Ernest Toshio Shinbori	Honokaa, Hawaii
Isidor Joseph Sklover	Detroit
John Dewey Skow, A.B.	Ellsworth
Irving Sobel	Detroit
Maxwell Earl Stone	Fenton
Wendell Holmes Sweet	Ashtabula, Ohio
Shan-Ming Tao, A.B., <i>Gingling College</i>	Kashing, China
John Alois Thabes, Jr.	Brainerd, Minn.
Frederick William Thomas, A.B., <i>Baldwin-Wallace College</i>	Fresno, Ohio
Smith Jerome Thorington	Grand Rapids
Russell Barry Townsend, <i>a</i>	Everett, Wash.
Frank Casper Valvo	Forestville, N. Y.
George Frank VanGorder	Chesaning
Andrew VanSolkema	Byron Center
Martha McCorkle Vaughan, A.B., <i>Hollins College</i>	Roanoke, Va.
Hymen Allen Vogel	Detroit

Hugh Allen Vore, B.S., *Greenville College*  
 Max Joseph Wainger  
 August Stanley Walkowski  
 James Jennings Warner  
 Lawrence William Weller  
 Carlton Webb Winsor  
 Rafael Luis Zamora

Ann Arbor  
 Detroit  
 Bessemer  
 Brainerd, Minn.  
 Youngstown, Ohio  
 Grand Rapids  
 Aquadilla, P. R.

### FIRST YEAR STUDENTS

Napier Stearns Aldrich  
 Alf Sven Alving, *a*  
 Alfred John Anderson  
 †James Meade Atkinson, *a*  
 John Clester Backaufke, *a*  
 Elizabeth Colville Bagley  
 Paul Herman Bassow, *a*  
 Lester Eugene Bauer  
 Raymond Orville Bell  
 Harry Mortimer Bishop, *a*  
 †Reuel Isaac Blake, *a*  
 Frank Maurice Boonstra, Jr., A.B.  
 Anderson Talbert Bowers, *a*  
 Benjamin Brand  
 Edward Maurice Brikman, *a*  
 Walter James Broad  
 Frank Brown  
 Gordon Taintor Brown  
 Daniel Budnitsky  
 Frederick William Buechner, B.S., *Notre Dame University*

Coldwater  
 Iron Mountain  
 Detroit  
 Eaton, Ind.  
 Butte, Mont.  
 Duluth, Minn.  
 Youngstown, Ohio  
 Athens  
 Mason  
 Highland Park  
 Ann Arbor  
 Zeeland  
 Dayton, Ohio  
 Detroit  
 Cleveland, Ohio  
 Ann Arbor  
 Detroit  
 Detroit  
 Detroit

†Robert Alden Burhans, *a*  
 †Howard Blue Burnside, *a*  
 †Norman Cameron, A.B., *g*  
 Ralph Bernard Chenot  
 Aileen Dean Christensen, A.B., *University of California*

South Bend, Ind.  
 Lansing  
 Detroit  
 New York, N. Y.  
 Highland Park  
 Salt Lake City, Utah

John Price Collins  
 Emis Henderson Corley, *e*  
 Kenneth Mercereau Davenport, A.B.  
 David Barden Davis  
 Howard Aldrich Davis  
 Elmer Louis DeGowin, A.B.  
 Orville Leston Denyes  
 Ben Peter Dorniak  
 Albert George Engelbach, B.S., *Pennsylvania State College*

Negaunee  
 Ann Arbor  
 Rochester, N. Y.  
 Grand Rapids  
 Hastings  
 Cheboygan  
 Owosso  
 Detroit  
 Johnstown, Pa.  
 Jamaica, B. W. I.  
 Three Rivers  
 Bayonne, N. J.

†Kenneth Richard Leigh Evans, *a*  
 Walter Alfred Fenstermacher, *a*  
 Sam Irving Finkelstein

Herbert Washburne Florer, <i>a</i>	Ann Arbor
Roger Alexander Forsyth	Detroit
Frank Albert Foss	Romeo
Francis Bruce Fralick	Greenville
†Hugh Malcolm Galbraith, <i>g</i> , A.B., <i>Albion College</i>	Montrose
Emidio Leon Gaspari	Toledo, Ohio
Major Wilson Gasper, B.S., <i>Hobart College</i>	Geneva, N. Y.
Stephen Martin Gelenger	Flint
Ai Mei Giang	Nanking, China
Arnold William Hackfield	Boston, Mass.
Harry Hurless Haight, B.S.	Crystal Falls
Lawrence Hinman Hall, <i>a</i>	Buchanan
Marinus H. Hamelink, A.B., <i>Hope College</i>	Holland
Harvey Carl Hansen	Battle Creek
Ralph Verling Harr, <i>a</i>	Munith
Francis Minton Hartz	Evansville, Ind.
Aaron Haskin	Newark, N. J.
Robert Ernest Hastings	Ann Arbor
Samuel Walter Heavenrich	Detroit
Robert Alan Hicks, <i>a</i>	Benton Harbor
Christel Anna Hiss, A.B., <i>Univ. of Toledo</i>	Toledo, Ohio
Charles Lester Hodge	Walled Lake
Elizabeth Buchanan Hoyt, A.B., <i>Univ. of Denver</i> , A.M.	Denver, Colo.
Carl Parker Huber, <i>a</i> , <i>g</i>	Ann Arbor
John Huntington Hutton, <i>a</i>	Detroit
Stanhope Pier Huyck, <i>a</i>	Clio
Carlyle Philip Imerman, <i>a</i>	Detroit
Paul Raymond Irej	Ann Arbor
Wesley Orville Jennings	Hartford
John Eddie Jones, <i>a</i>	Detroit
Oliver John Kechele, A.B., <i>Heidelberg University</i>	Fremont, Ohio
Cameron Dolson Keim, A.B., <i>Dickinson College</i>	Harrisburg, Pa.
John Willard Kemper, D.D.S.	Ann Arbor
Russell Cornelius Kimball, <i>a</i>	Ann Arbor
Paul Warren Kniskern	Muskegon
Helen Mary Koke	Toledo, Ohio
Carl Kotkin	Detroit
Joseph Winey Lam	Grand Rapids
†Cecil Ward Lepard, <i>a</i>	Ann Arbor
Francis James LeRoy, A.B., <i>Hope College</i>	Holland
Howard Felton LeRoy	New Lothrop
Franklin G. Lindemulder	Grand Rapids
Chester Stern Lowendorf, <i>a</i>	Niles, Ohio
Gordon Judson McCurdy, <i>a</i>	Cambridge, Mass.
Thomas Hislop McEachern, <i>a</i>	Ann Arbor
Malcolm Lamson McInnes	Toledo, Ohio
Walter Grierson Maddock, <i>a</i>	Detroit
Nur Muhammad Malik, <i>a</i>	Sayadwala, India



James Hoyt Maxwell, <i>a</i>	Paw Paw
Carl Gustave Miller	Fort Wayne, Ind.
Edwin Charles Miller, <i>a</i>	Detroit
Robert Page Montgomery, <i>a</i>	Eau Claire, Wis.
Mark Henry Mothersill, B.S.	Ann Arbor
Selma Christine Mueller, <i>a</i>	Mt. Clemens
Miles Joseph Murphy	Mt. Morris
Albert William Myers	Ann Arbor
Gordon Bennett Myers, <i>a</i>	Detroit
Vernon Durward Neger, <i>a</i>	Detroit
William Edward Nesbitt	Alpena
Frederick George Novy, Jr., <i>a</i>	Ann Arbor
Alex Olenikoff	Detroit
Clay Roberts Owsley	Mayfield, Ky.
†Richard Otto Papenguth, <i>ed</i>	Manistee
Thayer LeMoyné Parry	Woodsfield, Ohio
Arthur Sylvester Pasternacki, <i>a</i>	Detroit
Eugene Boone Perry, A.B.	Kansas City, Mo.
Hugh E. Pfluke	Detroit
†Ralph Rudolph Piper, <i>a</i>	Detroit
Hazel Ruth Prentice, A.B., <i>Smith College</i>	Kalamazoo
Alvin Edwin Price, A.B.	Detroit
Jonas Berk Rayman, <i>a</i>	Toledo, Ohio
†Norman Carl Reglien, <i>a</i>	Michigan City, Ind.
Louis Smith Reller, B.S., <i>Gettysburg College</i>	Pittsburgh, Pa.
Cho Ren, B.A., <i>Gingling College</i>	Hangchow, China
John Tibbitts Reynolds, A.B., <i>Michigan State Normal College</i>	Berville
Dean Marvin Richmond, A.B.	Ann Arbor
Clare Revilo Rittershofer, <i>a</i>	Ann Arbor
Abraham Solomon Rogoff, <i>a</i>	Detroit
Joseph McKinley Rosen, A.B., <i>Adelbert College of Western Reserve University</i>	Cleveland, Ohio
Sydney Rosenthal, <i>a</i>	Newark, N. J.
Anthony George Sackaloscas	Scranton, Pa.
Howard William Salisbury	Battle Creek
Lawrence Fox Segar	Detroit
Arthur Denton Seybold	Albion
Charles Wesley Shilling, B.S., <i>Taylor University</i>	Upland, Ind.
Ralph William Shook	Fulton
Leonard Shpiner	Newark, N. J.
Robert Sydney Simpson, <i>a</i>	Ann Arbor
Isidor Singerman	Detroit
George Kenneth Skinner, <i>a</i>	Detroit
Wendell Tracy Smith	Grand Rapids
Milo Raymond Snodgrass	Xenia, Ohio
Roscoe Howe Snyder	Bay City
Fred Sock	Bayonne, N. J.
Eggleton Clifford Soultis	Great Bend, N. Y.

Robert Henry Southcombe	Butte, Mont.
Mascha Mandel Spivack, B.S., <i>Toledo University</i>	Toledo, Ohio
Harold Edwin Stedman	Battle Creek
Howard Summer Stimpson	New York, N. Y.
Alva Claude Surber, Jr., A.B., <i>Harvard</i>	Muncie, Ind.
Carl Walter Swanson	Calumet
Reed Wallace Teed, <i>a</i>	Sayre, Pa.
Eldden John Teeter, <i>a</i>	Detroit
Charles Chapin Terry	South Bend, Ind.
Donald James Throp, A.B., B.S.	Ann Arbor
Arthur Ray Turner, <i>a</i>	Ann Arbor
Steven L. VanRiper	Grand Rapids
Sidney Leon Vogel, <i>a</i>	New York, N. Y.
Louis Onisim Voss	Detroit
William Vincent Wallace, B.S., <i>Univ. of Rochester</i>	Rochester, N. Y.
Clifford Walton	Lake City
Henry Collins Wass, B.S., <i>Michigan Agricultural College</i>	Port Huron
†Ralph Nelson Watkins, <i>a</i>	Milford
David Merrill Weeks	South Bend, Ind.
Fred Siegfried Weintraub	Coraopolis, Pa.
Jacob Weisberg	Detroit
Hugh Wellmeier	Dayton, Ohio
Halford Edwin Whitacre, B.S., <i>Denison University</i>	Bowling Green, Ohio
Jake Luidens Wierda, A.B., <i>Hope College</i>	Holland
Robert Weymouth Wilkins, <i>a</i>	Battle Creek
Grace Elizabeth Williams, A.B., <i>Iowa State Teacher's College</i>	Cedar Falls, Iowa
Arthur Robertson Woodburne	Grand Rapids
Max Singer Wright, <i>a</i>	Grand Rapids
Jordan Yanakieff, Ph.G., <i>Valparaiso University</i> , Ph.C.	Detroit
Lloyd Bennett Young, <i>a</i>	Detroit

## UNIVERSITY TRAINING SCHOOL FOR NURSES

## FOURTH YEAR

Elsie Johanna Anderson	Alpena
Gertrude Isabelle Biscombe	Calumet
Grace Etta Boughton	Millbury, Ohio
Gertrude Maude Bray	Calumet
Helen Jeannette Castell	Pontiac
Emma Clara Foster	Chicago, Ill.
Dorothy Rhuberta French	Albion
Marjorie Ann Furlong	Washington, D. C.
Reta Irene Glasby	Sault Ste. Marie
Olive Elizabeth Haskin	Fife Lake
Althea Herzog	Detroit
Thelma Marie Holmes	Ann Arbor
Dorothy L. Houck	Defiance, Ohio

Hazel Illeen Ireman, A.B.	Ann Arbor
Marion M. Johns	St. Clair
Isabel Johnson	Ashtabula, Ohio
Martha Jane Johnson	Verona
Eleanor Marguerite Kelly	Marne
Sadie Dorothy Krettner	Bay City
Mabel Largenesse	Marquette
Millicent Edith Leiper	Tuscaloosa, Ala.
Kathryn Loomis	Ashtabula, Ohio
E. Thelma Martin	Charlotte
Viola Mock	Fulton, Ill.
Margaret Newton	Ann Arbor
June Perry	Colling
Aurelia B. Potts, B.S., <i>Michigan Agricultural College</i>	Washington
Jessie Marie Pressler	Corunna, Ind.
Neva Irene Pumfrey	Remus
Helen M. Reynolds	Paw Paw
Beatrice E. Rinehart	Sparta
Evelyn M. Rutan	So. Charleston, Ohio
Cora L. Schnackenberg	Port Huron
Ruth Madeline Scott	Coldwater
Hetty E. Shepard	Jackson
Rena F. Spathelf, A.B.	Ann Arbor
Estelle S. Speidel	Salem, Ohio
Thelma Isis Stegeman	Lansing
Ada E. Stroud	Akron
Emma D. Swanson	Newberry
Ella Bell Taylor	Ann Arbor
Mildred I. Thornthwaite	Mt. Pleasant
Winnie Arleen Tibb's	Shepherd
Charlotte Evelyn Weimer	Vicksburg
Florence Lucille Wenger	Detroit
Esther Wester	Sparta
Jennie Williams, B.S., <i>Kansas State Agricultural College</i>	Meriden, Kans.
Gertrude Lyllyan Zingg	Bay City

## THIRD YEAR

Mary Lydia Aho	Yalmar
Edith Apted	Grand Rapids
Ruby Elliott Ayres, A.B.	Montgomery
Bella Balhoff	Sandusky
Roberta M. Barclay	Scottville
Elizabeth Bell	Jackson
Edna Helena Bolt	Grand Haven
Helen Catherine Bolt	Standish
Theodora Bowman	Alamo
Marian Cadwell	Ovid
Dorothy Louise Campbell	Fairbault, Minn.

Ellen Ruth Carlson  
 Alberta Eleanore Cheney  
 Mildred Myrtle Courtad  
 Mary Elfrid Davenport  
 Edna Duskin  
 Virginia Rhomasine Eby  
 Helen Henriette Eilola  
 Helen Lucille Elliott  
 Margaret Louise Grant  
 Margaret Elizabeth Griffin  
 Doris Eugenia Gustine  
 Daisy B. Harder  
 Josephine E. Heering  
 Dorothea A. Hewitt  
 Irene Hewitt  
 Atta Mae Hitchcock  
 Leta Mae Jackson  
 Margaret Kessler  
 Ruth Garrison Kircher  
 Dorothy Emogene Lapham  
 Mary Rossman LeIsle  
 Zana Louise Lowth  
 Margaret Helen Mahaffy  
 LaRue Harriett Mahoney  
 Katherine Mary Nelson  
 Lottie Ogletree  
 Vivian Ermia Pavey  
 Marie Wilhelmina Pries  
 Pauline Pulsipher  
 Alice Kathryn Quick  
 Veronica Rahilly  
 Miriam Edith Ray  
 Pansy Merle Shambaugh  
 Elizabeth Virginia Sharpe  
 Grace Whittemore Shurlow  
 Nellie Matilda Slatter  
 Dorothy B. Swain  
 Florence Enid Vogel  
 Marguerite Angeline Wellman  
 Marie Wicklund  
 Mildred Williamson

Newberry  
 Jackson  
 Tecumseh  
 Bucyrus, Ohio  
 Belleville, Kans.  
 South Haven  
 Hancock  
 Grand Haven  
 Marion, Ind.  
 Lacota  
 Benton Harbor  
 Pigeon  
 Grand Rapids  
 Manistique  
 Friendship, N. Y.  
 Hillsdale  
 Adrian  
 Hubbell  
 Ann Arbor  
 St. Petersburg, Fla.  
 Allegan  
 Cadmus  
 Ann Arbor  
 Three Rivers  
 Kane, Pa.  
 New Albany, Ind.  
 Hillsdale  
 Saginaw  
 Grand Rapids  
 Saginaw  
 Michigamme  
 Xenia, Ohio  
 Celina, Ohio  
 Kane, Pa.  
 Lapeer  
 Defiance, Ohio  
 Jackson  
 Chelsea  
 Jackson  
 Pentwater  
 Gagetown

## SECOND YEAR

•Ebba Ruth Anderson  
 Margaret Irene Angell  
 Ruth Badgley  
 Ruth Bedford  
 Edna Lucille Berger  
 Myrtle Ardella Berry

Iron River  
 Harbor Springs  
 Jackson  
 Middleville  
 Bourbon, Ind.  
 Flint

Arah Helen Beyschlag	St. Clair
Florence T. M. Bott	Ann Arbor
Esther Boyce	Harrisville
Lucille Bradley	Midland
Norma M. Burmeister	Onkama
Esther E. Case	Battle Creek
Suai Lau Chih	Nanking, China
Genevieve Coons	Midland
Gladys Mary Covey	Rogers
Beulah May Crawford	East Lansing
Letta Dawkins	Pontiac
Nina Gail Drouyor	Hubbardston
Josie Fletcher	Sault Ste. Marie
Marian L. Fox	Detroit
Ruth Adeline Frank	Ypsilanti
Beatrice Eleanor Friday	Richmond
Mary Funk	Bucyrus, Ohio
Mary Lois F. Grierson	Alma
Pearl May Haist	Crediton
Alice Mae Handy	Sodus
Ruby Eleanor Hanson	Grand Haven
Bernadine H. Hermann	Calumet
Zola Leona Holdeman	Elkhart, Ind.
Theresa Opal Johnson	Sodus
Anna Marie Kallio	Stambaugh
Winifred May Kellogg	Camden, Ind.
Kathryn Elizabeth Kennedy	Camden, Ind.
Mary Louise Kennedy	Deckerville
Marjory Alice Knapp	Benton Harbor
Martha F. Knecht	Centreville
Frances Katherine Dolores Kobe	Calumet
Mamie S. Larsen	Plainesdale
Rachel Elizabeth Lemler	Bourbon, Ind.
Helen Linn	Bluffton, Ind.
Frieda Christine Lutz	Adrian
Olive Hazel Belle McDonald	Gagetown
Jean McGaw	Kincardine, Ont.
Muriel Kate McGugan	London, Ont.
Clara Pearl McLain	Defiance, Ohio
Pauline Markham	Pulaski
Dora Mae Marshall	Bellevue
Ethyle Lillian Mills	Newberry
Frances C. Morehouse	Ovid
Willo Evelyn Morton	Boyne City
Phyllis L. Myers	Bucyrus, Ohio
Anna Guinhyld Nelson	Manistique
Nellie Elma Nichol	Jackson
Helen Percival	London, Ont.
Edna Sylvia Plageman	Columbus, Nebr.

Erna Marguerite Plageman  
Bernice Eleanor Raygor  
Gladys Scharer  
Margie Marie Schneider  
Henriette Scholten  
Mary Margaret Slough  
Beatrice Katherine Sprague  
Dorothy Steffe  
Dorothy Mary Sullivan  
Lucille Sweers  
Allien Jeanette Travis  
Florence Weng  
Cecile Fay Willis

Columbus, Nebr.  
Jackson  
Toledo, Ohio  
Fort Wayne, Ind.  
Holland  
Bourbon, Ind.  
Corning, N. Y.  
Lake City  
Detroit  
Goodrich  
Lorain, Ohio  
Marine City  
Harbor Springs

# Law School

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## FACULTY

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Victor H. Lane, C.E., LL.B.  
Horace L. Wilgus, M.S.  
Henry M. Bates, Ph.B., LL.B., *Dean*  
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Joseph H. Drake, LL.B., Ph.D.  
Edson R. Sunderland, A.M., LL.B.  
Evans Holbrook, A.B., LL.B.  
Ralph W. Aigler, LL.B.  
John B. Waite, A.B., LL.B.  
Edgar N. Durfee, A.B., J.D.  
Grover C. Grismore, A.B., J.D., *Secretary*  
Edwin D. Dickinson, J.D., Ph.D.  
Burke Shartel, A.B., J.D., S.J.D.  
Herbert F. Goodrich, A.B., LL.B.  
Paul Vinogradoff, D.C.L., LL.D.

## SPECIAL LECTURER:

John A. Veasey, LL.B.

## STANDING COMMITTEES

### Administrative

Professors H. M. Bates, E. Holbrook, G. C. Grismore, and H. F. Goodrich.

### Library

Professors H. M. Bates, V. H. Lane, H. L. Wilgus, J. H. Drake, E. D. Dickinson.

### Attendance

Professors H. M. Bates, B. Shartel, and G. C. Grismore.

### Curriculum

Professors H. M. Bates, H. L. Wilgus, E. C. Goddard, E. N. Durfee, and G. C. Grismore.

### Law Review

Professors H. M. Bates, E. R. Sunderland, R. W. Aigler, J. B. Waite, E. D. Dickinson, and B. Shartel.

## STUDENTS\*

## FOURTH YEAR STUDENTS

- Bernabe Africa, LL.B., *University of Southern California*  
 Manila, P. I.  
 Hobart Raphael Coffey, A.B., LL.B., *Ohio State Univ.* Ann Arbor  
 Ricardo Avenido Pronove, LL.B., *National University* Manila, P. I.  
 Kung Shih, LL.B., *The Comparative Law School of China*  
 Shanghai, China

## THIRD YEAR STUDENTS

- |  |                    |
|--|--------------------|
| I. Zelig Acoff                                       | Pontiac            |
| Robert Adams, Jr.                                    | Caseville          |
| Henry Harlow Akers                                   | Phoenix, Ariz.     |
| Frank Haskell Bacon, A.B., <i>Allegheny College</i>  | Union City, Pa.    |
| Seth Roland Bidwell                                  | Niles              |
| Andrew C. Bokelman                                   | Mount Vernon, Ind. |
| Jesse William Bollinger                              | Dearborn           |
| Bruce Gladstone Booth, A.B.                          | Detroit            |
| Otto Oral Bowen                                      | Kansas City, Mo.   |
| John Philip Boyce, A.B.                              | Ypsilanti          |
| Stewart Randolph Boyer                               | Monongahela, Pa.   |
| Oscar Abraham Brown, A.B.                            | Cleveland, Ohio    |
| Louis Anton Buck, Jr., A.B.                          | Slater, Mo.        |
| Edwin John Burrows                                   | Detroit            |
| Rowland Mark Butler                                  | Hagerstown, Md.    |
| John Anthony Carrigan                                | Blair, Nebr.       |
| George Hutchins Cary, Jr., A.B.                      | Lapeer             |
| Francis Edmund Chadwick                              | Detroit            |
| John Crafton Clark, A.B., <i>Knox College</i> , A.M. | Galesburg, Ill.    |
| Webb Rufus Clark, A.B.                               | Greenville, Ohio   |
| Edward Francis Conlin                                | Ann Arbor          |
| William Erastus Crane                                | Saginaw            |
| Robert Crary   | Jackson            |
| Edmund Augustine Cummiskey                           | Ann Arbor          |
| George Dammann                                       | Hillsboro, Ill.    |
| John Philip Dawson, Jr., A.B.                        | Detroit            |
| Victor Henry DeBaeke, A.B.                           | Detroit            |
| Joseph Edward Defley, A.B.                           | Ann Arbor          |

\* A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another School or College of the University, indicated by an italic letter following the name, to-wit: *a*, College of Literature, Science, and the Arts; *e*, College of Engineering; *ea*, College of Architecture; *ed*, School of Education; *m*, Medical School; *p*, College of Pharmacy; *d*, College of Dental Surgery; *g*, Graduate School. The letter following the name (without the dagger), indicates that the student is pursuing a combined curriculum, leading to a degree in each of the two.



Norman Lee DesJardins	Lapeer
Ralph Diener Dieterle, A.B.	Detroit
Delmar W. Doddridge	Milton, Ind.
Raymond H. Dresser	Litchfield
Louis Martin Dyll, A.B.	Helena, Mont.
Violet Oneita Emmons, A.B.	Battle Creek
Leonard White Ferris, A.B.	Utica, N. Y.
Leonard C. Fielder, A.B., <i>University of Kentucky</i>	Palmer, Ky.
Salvatore Vincent Fiordelis	Detroit
Harvey Alger Fischer	Detroit
Wendall Thomas Fitzgerald, A.B.	Ogden, Utah
William H. Frankhauser, A.B.	Hillsdale
Lloyd William Friedman	Grand Forks, N. Dak.
Allard W. Frogner	Portland, Ore.
John Toan Galarneault	Aitkin, Minn.
West Heslet Gallogly	Detroit
Sydney Norman Galvin	Cleveland, Ohio
Frederick Christopher Gielow, A.B.	Detroit
Donald Kellner Gillard	Alpena
Theodore Nathaniel Goldstein	San Bernardino, Calif.
Jules Conrad Goldstone	Detroit
Richard Gerveys Grylls, A.B.	Detroit
Cecil Harold Haas, A.B., <i>University of Kansas</i>	Albert, Kans.
Harry Ancil Hall	Kansas City, Mo.
George Dewey Haller, Ph.B., <i>University of Notre Dame</i>	Sault Ste. Marie
Olin Clark Hammock, A.B., <i>Vanderbilt University</i>	Shellman, Ga.
Samuel Havelik Himmelstein, A.B.	Grand Rapids
Alfred Carroll Hirth, A.B.	Detroit
William Holten Hitchcock, A.B., <i>University of Kansas</i>	Augusta, Kans.
Wilfrid Hocking	Lake Linden
Hymen Hoffman, A.B.	Ann Arbor
Harold Edgar Howlett	Howell
George William Hulbert, A.B.	Ann Arbor
Becher William Hungerford, A.B.	Ann Arbor
Traves Jeffries Hunter	Detroit
Abe Hurwich	South Bend, Ind.
Clayton Fred Jennings, A.B.	Lansing
William G. Keane, A.B., <i>Indiana University</i>	Mitchell, Ind.
John Wilbert Kelly	Great Falls, Mont.
Cyril Lynn Kendall, A.B.	Titusville, Pa.
Earle E. Kincaid, A.B., <i>Ohio University</i>	Malta, Ohio
Paul Eric Krause	Cleveland, Ohio
Fred George Krivonos	Cleveland, Ohio
Dwight John Krumboltz, A.B., <i>Parsons College</i>	Pleasant Plain, Ia.
Frank Vilas Lambertson	Flint
Victor Hugo Lane, Jr.	Ann Arbor
Norman Dunham Lattin, A.B., <i>Colby College</i>	Corning, N. Y.

Donald Leon Lawrence, A.B.	Brook, Ind.
Louis Charles Lehmann, Jr.	Newark, N. J.
Paul Allen Leidy, A.B., A.M.	Ann Arbor
Don M. Lillie, A.B.	Coopersville
Lloyd Albert Loomis	Detroit
Ray Edwards McCall, A.B., <i>Hillsdale College</i>	Ithaca
Glenn Avann McCleary, A.B., <i>Ohio Wesleyan University</i>	
	Iron Mountain
Walter Starr McEachern	Ann Arbor
John Charles McGinnis, A.B.	Pitts Cairn, Pa.
Cecil Rhodes McIntosh	Raton, N. Mex.
William Pinckney McLean	Fort Worth, Texas
Hollis Cherrington Martin, A.B., <i>Rio Grande College</i>	Royal Oak
John Carl Martindale	Quincy, Ill.
Horace Messer Mechem	Battle Creek
Russell Franklin Meyer	Springfield, Ill.
Fernand Walton Miller, B.S.E.	Battle Creek
George DeWitt Miller, a	Chicago, Ill.
Harry Edward Moreland	Alliance, Ohio
Louis Adam Nack	Galena, Ill.
Joe Leon Nathanson	Minneapolis, Minn.
Anthony Lewis Oswald	Hutchinson, Kans.
Duke Moyer Patrick, B.S., <i>Purdue University</i>	Paragon, Ind.
Francisco Penberthy, A.B.	Ann Arbor
Roger Keith Powell, A.B.	Mount Gilead, Ohio
Walter Scott Rae	Dearborn
Edgar Matthew Reitz	Detroit
Ernest Richards, A.B., <i>Morehouse College</i>	Meridian, Miss.
Robert Bradner Ritter, A.B.	Detroit
Ronald Martin Ryan	Marshall
Myron Harold Savidge	Benton, Pa.
William Adam Schlueter, A.B.	Ann Arbor
Bowen Emerson Schumacher, A.B.	Highland Park, Ill.
William Joseph Schwartz	Waterbury, Conn.
Thomas Gordon Scupholm, A.B., <i>Albion College</i>	Battle Creek
Wilber Morgan Seelye, A.B.	Kalamazoo
William Roy Seibert	Pearl City, Ill.
George Edward Sloan	Bloomington, Ill.
Carl Henry Smith	Bay City
Harrison Wilson Smith	Oxford, Ohio
John Harold Smith, A.B.	Detroit
Yates Gorham Smith, A.B., <i>Yale University</i>	Detroit
Charles Frederic Stanton	Royal Oak
James Allison Starr	Harbor Springs
John Steketee	Grand Rapids
Lucien Frederick Sweet	Dowagiac
Robert Speer Tubbs, A.B.	Kill Buck, N. Y.
Charles Kiely VanDuren	Holland
Karl Herget Velde, A.B.	Pekin, Ill.

Harold Deegan Warren, A.B., *Albion College*  
 John Raymond Weaver  
 Alvin Fernand Weichel, A.B.  
 George Nathaniel Welch, A.B.  
 Newman William White  
 Kenneth D. Wilkins  
 Ben Wesley Winter, A.B.  
 Max Albert Wishek  
 Edward Hilton Yost, A.B.

Ann Arbor  
 Harbor Springs  
 Sandusky, Ohio  
 Chicago, Ill.  
 Glendale, Ariz.  
 Ann Arbor  
 Detroit  
 Ashley, N. Dak.  
 St. Louis

### SECOND YEAR STUDENTS

Fred Roland Allaben, A.B.  
 Edgar Charles Ashmead  
 Joseph Alfred Avery, A.B.  
 Ari Milton BeGole  
 Stanley John Borucki, A.B.  
 Edward Shrader Bowles, A.B., *University of Oklahoma*

Rockford, Ill.  
 Bloomfield, Iowa  
 South Bend, Ind.  
 Wyandotte  
 Manistee

John Adelbert Boyce, A.B.  
 Robert Brikman  
 James Kent Brooker  
 Walter Albert Browe, A.B.  
 Meyer Monroe Brown, a  
 Jesse Keener Brumbaugh  
 Lothrop Perkins Bull, A.B.  
 Richard Gilleland Burchell, A.B.  
 Clarence Elmer Butler  
 Charles Ihrig Campbell  
 Lloyd Courtland Carleton  
 Cyrus Eberhart Churchill  
 Kit Francis Clardy  
 Dan Anthony Coll  
 Hartwell Guerin Crain  
 Glenn D. Curtis, A.B.  
 John Thomas Dasef, A.B., *Alma College*  
 Herschel B. Davis  
 Harold Bernard Desenberg  
 Douglas Ragan Dewey  
 Thomas Joseph Donahue  
 Donald Daniel Duncanson, A.B.  
 John Edgar Dwyer, A.B.  
 Arthur Bruce Elkins, A.B., *University of Missouri*  
 George Raymond Elledge  
 William Robert Emblidge  
 Carl Emanuel Enggas, A.B.  
 Samuel Paul Epstein, A.B., A.M.,  
 William Alexander Ewart  
 Don Dickinson Falvey  
 Louis Leonard Feinseth

Perry, Okla.  
 Detroit  
 Cleveland, Ohio  
 Cass City  
 Detroit  
 Traverse City  
 Greenville, Ohio  
 Oak Park, Ill.  
 Erie, Ill.  
 Benton Harbor  
 Poland, Ohio  
 Billings, Mont.  
 Moline, Ill.  
 Ann Arbor  
 Johnstown, Pa.  
 Webster Groves, Mo.  
 Edmore  
 Stanton  
 Clinton, Ind.  
 Buchanan  
 Robinson, Ill.  
 Scranton, Pa.  
 Ann Arbor  
 Ann Arbor  
 Detroit  
 Bismarck, Mo.  
 Buffalo, N. Y.  
 Kansas City, Mo.  
 Bayonne, N. J.  
 Pontiac  
 Detroit  
 Newark, N. J.

Jennings Alex Fleishbein	Ironwood
Leland Stanford Foster, A.B.	Casey, Ill.
William Phelps Foster, A.B.	Traverse City
Willard B. Gaskins, A.B.	Harrisburg, Ill.
Peter Philip Ginsberg	Detroit
Roy Clarence Goodhew	Lowellville, Ohio
George Jean Gould	Toledo, Ohio
Louis Henry. Grettenberger, A.B., <i>Michigan State Normal College</i>	Grand Rapids
Harry Bates Grundy, A.B.	Taylorville, Ill.
Jess Evart Hammock	Kenova, W. Va.
Harry Hartman, A.B.	Detroit
Elton Frank Hascall, Jr., A.B.	Detroit
John Allen Hay, A.B.	Marion, Ill.
Russell Randolph Hays, A.B.	Hobart, Okla.
Laurens Livingston Henderson, A.B., <i>Dartmouth College</i>	Indianapolis, Ind.
Samuel Jackson Chapman Hess	Manitou Springs, Colo.
Vernon Francis Hillery, A.B.	Los Angeles, Calif.
Joseph Vernon Hodgson, A.B.	Sault Ste. Marie, Ont.
John Thomas Inghram, Jr., A.B., <i>Dartmouth College</i>	Quincy, Ill.
Isadore Isaacson	Alpena
Carroll Brewster Jones	Marcellus
Bernard S. Kolb	Chicago, Ill.
Millard Harry Krasne	Council Bluffs, Iowa
Charles Coolidge Kreis, A.B.	Detroit
Milan Gail Leach	Niles
Merwyn Grant Leatherman, A.B.	Ann Arbor
Joseph Leta, A.B.	Franklin, Pa.
Bernard Lieberman	Detroit
Alfred Eric Lindbloom, A.B.	Moline, Ill.
Alan Spangler Loose, A.B., <i>Princeton University</i>	East Mauch Chunk, Pa.
Harold F. Lusk, A.B.	Elsie
Thomas Joseph Lynch	Niagara Falls, N. Y.
Joseph Walsh McAuliffe, A.B.	Albion
Edward Clyde McCobb, A.B.	Sarnia, Ont.
David Elderfield MacEllven	Niagara Falls, N. Y.
Thomas Gerald McShane	Grand Rapids
Milton Morris Maddin	Detroit
Harry Stille Manchester, B.S., <i>College of Wooster</i>	Canfield, Ohio
Benjamin Jeremiah Manley	Sturgis
Robert Ulysses Martin, A.B., <i>Otterbein College</i>	Dayton, Ohio
Laurence Arthur Masselink	Big Rapids
Leo Mellen	Detroit
Elmer Earl Metz	Kokomo, Ind.
Benjamin David Miller	Houghton
Jerome Travis Miller	Decatur, Ill.
Arthur Eugene Moore, A.B.	Royal Oak

Maurice Milton Moule	Pontiac
Clarence Mortimer Mullholland	Toledo, Ohio
Edward Elmer Murane	Casper, Wyo.
Lars Torbjorn Eugene Ness, A.B., <i>Wittenberg College</i>	
	Springfield, Ohio
Charles Francis Noonan, A.B.	Watertown, S. Dak.
Leland Hascel Notnagel	Corunna
Frederick Rudolph Nyberg, A.B.	Menominee
Edwin Bernard Oppenheim	Detroit
Frank James Ortman, A.B.	Cullom, Ill.
Albert Jennings Parker, A.B.	Hastings
Arthur Jacob Paul	Burlington
Leland D. Phelps	Cedar Springs
Arthur Eugene Pierpont, A.B.	Owosso
Robert Mullendore Porter	Edinburg, Ind.
William Zinsmaster Proctor	Des Moines, Iowa
Edward Hess Rakow	Burlington, Wis.
Maurice Pratt Rhodes, A.B.	Bowdle, S. Dak.
Solomon Kniper Riblet	Muskegon
Robert VanVolson Rice	Grand Rapids
Henry Paul Rosin	Cleveland, Ohio
Raymond Julius Roth	Wilmette, Ill.
Florence Rosetta Rhodes Rouse, A.B.	Ann Arbor
Philip John Schneider	Dayton, Ohio
Bernard Segall	Richmond Hill, N. Y.
Earl Reginald Shopen	Elgin, Ill.
Fred Henry Sims	River Rouge
Howard Winter Smith	Highland Park
Robert Richard Snodgrass	Franklin, Kans.
†Marshall Dean Spencer, g, A.B.	Lawton
Marion Barber Stahl, A.B.	West Point, Nebr.
Gordon Eugene Tappan	Port Huron
Cyrus Nils Tavares	Paia, Hawaii
George Tyler Townley	Ann Arbor
Gordon Floyd Van Eenam	Zeeland
Walter Hippen Velde, A.B.	Pekin, Ill.
Victor James Voorheis, A.B.	Harbor Springs
Richard John Wall	Toledo, Ohio
Lawrence Corwin Warden	Napoleon, Ohio
Paul Emrich Watzel	Lansing
Odillion Barrett Weed	Charlevoix
Ben Strecker Wendelken, A.B. <i>Colorado College</i>	
	Colorado Springs, Colo.
Herman Wepman, A.B.	Grand Rapids
Howell Swanton White	Reed City
George Charles Wilson	Detroit
Paul Revere Wilson	Detroit
Alvin Wolfson, A.B.	Mount Clemens
Alexander Evan Wylie, B.S. <i>Knox College</i>	Wheaton, Ill.

Robert George Yerkes, A.B.  
James Boswell Young  
Bernard Frederick Zinn

Northville  
Millersburg, Ky.  
Huntington, Ind.

## FIRST YEAR STUDENTS

Albert Harding Adams, *a*  
Arthur Emil Anderson  
George Russell Babcock, A.B.  
Frank Harold Backstrom, *a*  
John Anderson Bacon, *a*  
Douglas William Bell, *a*  
Frederick Phillip Bamberger  
Gaylord Newell Bebout, Jr., *a*  
Irving Stanley Berk  
Weldon Glenwood Bettens, *a*  
Major Bird, B.S. *Dartmouth College*  
Hiram Claire Bond, A.B.  
Edward Owen Boshell, B.S. *University of Illinois*  
Edward Llewellyn Bowman  
Francis Joseph Brettle, Jr., *a*  
Thomas Vernon Briggs  
Robert Andrew Brown  
Robert Wendell Brown  
John McClelland Eulkley, *a*  
Samuel Brooks Burnstein, Jr.  
William Bernard Butler, A.B.  
Ross Stevenson Campbell, A.B.  
Herschel Westnedge Carney  
Harold Hudson Channer, A.B.  
Clark Ledyard Chase  
Edward Salisbury Clark, Jr.  
Harry Clinton Clark, *a*  
Jack McIntyre Clifford  
Robert Harris Coffin  
Jack Robert Cohen  
Charles John Cole, A.B.  
John Parker Comstock, Jr.  
Samuel Corson, A.B. *University of Wyoming*  
Earl Wallace Cory, *a*  
Walter Wilfrid Joseph Croze, Jr.  
William Byrnes Cudlip  
Kenneth Dewitt Cummins, *a*  
Margaret Agnes Cummisky  
Richard Harding Davis  
Garland deGraffenried  
Herman William DeRuiter, A.B.  
Joseph Earl Dickinson, B.S.  
Kora Dern Diehl  
Meredith Henry Doyle

Ann Arbor  
Ironwood  
Coldwater  
Kansas City, Mo.  
Kansas City, Mo.  
Louviers, Colo.  
Mount Vernon, Ind.  
Detroit  
Akron, Ohio  
Hancock  
Adrian  
Royal Oak  
Melvin, Ill.  
Greenville  
Cherry Creek, N. Y.  
Mount Sterling, Ill.  
Ann Arbor  
Bad Axe  
Detroit  
Holyoke, Mass.  
Grand Rapids  
Detroit  
Kalamazoo  
Detroit  
Messena, N. Y.  
Bay City  
Kansas City, Mo.  
Manistee  
Jackson  
Los Angeles, Calif.  
Wauseon, Ohio  
Omaha, Nebr.  
Cheyenne, Wyo.  
Blackfoot, Idaho  
Duluth, Minn.  
Iron Mountain  
Harrisburg, Ill.  
Ann Arbor  
Stamps, Ark.  
Chilton, Texas  
Grand Rapids  
Cass City  
Detroit  
Menominee

Charles James Dresbach, <i>a</i>	Circleville, Ohio
Milton Dreyfuss	Buffalo, N. Y.
John Alden Duncan	Traverse City
Walter Torrence Dunn, A.B. <i>Muskingum College</i> ; A.M.	Salem, N. Y.
George Elmer Ehrke	Cleveland, Ohio
Harold William Elliot	Mount Clemens
Lawrence Llewellyn Farrell	Iron Mountain
Maxwell Edward Fead	Yale
George Grover Feldman	South Bend, Ind.
John Ferguson, <i>a</i>	Detroit
Arnold Tobias Fleig	Oklahoma City, Okla.
William Fleischaker, <i>a</i>	Louisville, Ky.
Thomas Wallace Fleming, Jr.	Cleveland, Ohio
Frances Mary Florer, A.B.	Ann Arbor
Arthur Ford	Jamestown, N. Y.
Richard Ford, A.B., <i>Michigan State Normal College</i>	Ypsilanti
Leo Isaac Franklin, <i>a</i>	Detroit
Donald Bartholomew Frederick	Detroit
Ralph MacKenzie Freeman	Flint
William August Freimuth	Detroit
Henry Freud	Detroit
Burton J. Friedman	Highland Park
Bert Eugene Fry	Ann Arbor
William Genneth Galbraith, A.B.	Laurium
Francis Joseph Gallagher, A.B., <i>Campion College</i>	Toledo, Ohio
Edward Herbert Gassman	Detroit
Charles Hirsch Gershenson	Highland Park
Ray Sullards Gibson, A.B. <i>Hendrix College</i>	DeWitt, Ark.
William Alexander Gibson, Jr., <i>a</i>	Detroit
George Norman Gilmore	Highland Park
Thomas Barry Gilmore	Chicago, Ill.
Ronald Marks Gladstone	Omaha, Nebr.
Joseph Abraham Gluckman, B.S.	Brooklyn, N. Y.
William Maile Goss, <i>a</i>	Lakewood, Ohio
William David Gowans, <i>a</i>	Detroit
William Chase Guthrie, <i>a</i>	Flint
Clayton Gould Hale, <i>a</i>	Cleveland Heights, Ohio
Harry Lee Hall	Fowler, Ind.
Max Cole Hamlin, <i>a</i>	Traverse City
Raymond Harrison Harkrider, <i>a</i>	Brook, Ind.
Louis Christian Harnish, A.B. <i>Franklin and Marshall College</i>	Lancaster, Pa.
Wendell Owen Harris	Fort Wayne, Ind.
Earl Cole Hartson	Port Huron
John Clifford Haskin	Robinson, Ill.
Ralph Carl Heidloff	Toledo, Ohio
† John Marvin Herman, <i>a</i>	Boone, Iowa
Oakley Delose Herrick	Battle Creek

Emerson Lewis Hill	Detroit
Henry Prewitt Hill	Ann Arbor
Forest Hoffman	Windber, Pa.
William Lawson Holloway, <i>a</i>	Helena, Mont.
Charles Alfred Holman	Ironwood
Jack Honigman, <i>a</i>	Detroit
Warren Campbell Horton, A.B.	Escanaba
Seth Andrew Francis Hubbard, <i>a</i>	Riverhead, N. Y.
Ralph Francis Huck	Quincy, Ill.
Frank McColl Hursley, <i>a</i>	Detroit
Irving Arthur Hurwich	South Bend, Ind.
Egbert Raymond Isbell, A.B.	Ypsilanti
Robert Griffith Jamieson, A.B. <i>Oberlin College</i>	Batavia, Ohio
†Fred Thomas Jarrett, <i>a</i>	Farrell, Pa.
Jerome Joschim, A.B. <i>University of Kansas</i>	Ann Arbor
Harry Walton Jones	Detroit
Joe Joseph, <i>a</i>	Flint
William Harold Kailes	Elyria, Ohio
Andrew Mac Keep, A.B., <i>Oberlin College</i>	Albion, Pa.
Philip Henry Kelley	Lansing
Bernard Afford Keltner, B.S. <i>Dartmouth College</i>	South Bend, Ind.
Quentin McKay Klein	Ann Arbor
Samuel Komito	Cleveland, Ohio
Thomas Beck Lally, A.B.	Ann Arbor
Louis Lee Landman, <i>a</i>	Grand Rapids
Milton Raymond Landy, A.B.	Cleveland, Ohio
Lucian Lane, <i>a</i>	Kansas City, Mo.
Carl Frederick Lang	Ypsilanti
Robert Dale Law	Freeland
Louis Joseph Leo	Ypsilanti
Frank Emerson Lewellen	Newton, Kans.
Willard Howe McEwen, A.B. <i>Ohio State University</i>	Fostoria, Ohio
Lawrence Frank McKnight	Grand Rapids
Norman Herman Magel	Detroit
Dudley Mallory, B.S. <i>Virginia Union College</i>	Oakpark, Va.
Rogers Israel Marquis, A.B., <i>Princeton University</i>	Detroit
Rawson Odell Marsh	Ann Arbor
Edward Kinne Martin	Cedar Falls, Iowa
George Samuel Martin	Chicago, Ill.
Walter John Maxey	Ann Arbor
Robert John Wesley Meffley, A.B. <i>Toledo University</i>	Toledo, Ohio
James Mann Miller, A.B.	Chicago, Ill.
Norman Selby Minor	Cleveland, Ohio
Pio Q. Molina	Baler, P. I.
Charles J. Munz, Jr.	Denver, Colo.
Alton Henry Noe, <i>a</i>	Mount Clemens
Francis Leo O'Melia, <i>a</i>	St. Louis
Royal Oppenheim	Detroit
Saul Chesterfield Oppenheim, A.B., <i>Columbia University</i>	Battle Creek
A.M. <i>ibid</i>	



Ellsworth Cuthbert Owen, <i>a</i>	Sault Ste. Marie
Jack Harder Page	Rockford, Ill.
Edwin George Pailthorp	Petoskey
Robert W. Palda	Minot, N. Dak.
Leonard Beaumont Parks, <i>a</i>	Cleveland, Ohio
George Arthur Parmenter	Petoskey
Angus Ross Pascoe	Ishpeming
Jay Howard Payne, A.B.	Ann Arbor
Charles Robin Perkins, A.B. <i>Morehouse College</i>	Detroit
Daniel Petermann	Laurium
Russell Franklin Peters	Peoria, Ill.
Henry William Petzinger	Kent, Ohio
Ewald W. Pfeiffer	Manistee
Robert Karl Phelps, B.S. <i>Michigan Agricultural College</i>	Lansing
Harry Herman Platt, <i>a</i>	Detroit
John William Pollins, A.B.	Ann Arbor
Samuel Rollo Post, A.B.	Detroit
Raymond Southerland Powers, <i>a</i>	Youngstown, Ohio
Kenneth Graydon Prettie, <i>a</i>	Ann Arbor
Clayton Calvin Purdy, <i>a</i>	Detroit
George Scott Register, A.B. <i>Jamestown College</i>	Bismarck, N. Dak.
David Neil Reid, <i>a</i>	Redford
Norman Dimmick Reynolds	Battle Creek
Horace Thomas Ringer	Williamsport, Ind.
Charles Gray Robertson, A.B.	Pontiac
Arthur Robinson	Alexandria, La.
John Walter Rody	Kokomo, Ind.
Richard Frederick Roe, A.B.	Detroit
John Wesley Ross, B.S.	Sault Ste. Marie
Gerald Martin Ryan	Toledo, Ohio
Philip Michael Ryan	Ann Arbor
John Archer Sabo, Jr.	Gary, Ind.
William Edward Scanlan, B.S. <i>University of Pennsylvania</i>	Johnstown, Pa.
William Jacob Schoonover, B.S.E. <i>University of Arkansas</i>	Pocahontas, Ark.
Maxwell D. Schuster, <i>a</i>	Detroit
Walter Leonard Scratch	Kingsville, Ont.
James Penfield Seiberling, B.S., <i>Princeton University</i>	Akron, Ohio
Felix Fluegel Silver, <i>a</i>	Detroit
Floyd Howard Skinner, <i>a</i>	Onota
Donald Gray Slawson, <i>a</i>	Ann Arbor
Arthur Mumford Smith, <i>a</i>	Lansing
Ned Hale Smith	Detroit
Sherman Woodruff Smith	Helena, Mont.
Max Edward Stein	Detroit
Louis John Stempfly	Flint
Orlando Wilton Stewart, A.B. <i>Fisk University</i>	Detroit
Edward Thomas Stibich, <i>a</i>	Johnstown, Pa.
Thomas Carr Strachan, Jr., <i>a</i>	Colorado Springs, Colo.

Lowell S. Stump, <i>a</i>	Nappanee, Ind.
Carroll Richard Taber	Mulliken
Albert Marshall Thayer	Indianapolis, Ind.
John Roberts Todd	Duluth, Minn.
Noble Daniel Travis	Plainwell
Tien Chih Wang, A.B. <i>Syracuse University</i>	Mukden, China
Anthony Vincent Washkewich, <i>a</i>	Newark, N. J.
Benjamin Frankland Watson, <i>a</i>	Ann Arbor
Edward Eugene Weadock, <i>a</i>	Saginaw
Carl Andrew Weinman, <i>a</i>	Steubenville, Ohio
Robert Lawrence Weisenburger	Defiance, Ohio
Maceo Antonio White	Detroit
William John Wilkins	Mass City
Martin Stanley Wilkison	New Castle, Pa.
Absalom Hilliard Williams, <i>a</i>	Huron, Ind.
Donald Edgar Williams, A.B.	Traverse City
Arthur Harold Witham	Ann Arbor
Harold Gilbert Wood, A.B., <i>University of Utah</i>	Trenton
Roger Irving Wykes, Jr.	Grand Rapids
Frank Landon Young, Jr., A.B.	Lansing
Leslie Young	Detroit
George Herbig Younge	Peoria, Ill.
Louis Edward Yunker	Toledo, Ohio
George Koenig Zimmerman	Marine City

## SPECIAL STUDENTS

Ferdinand Northrup Menefee, B.S. in C.E. <i>University of Nebraska, C.E. Cornell University</i>	Ann Arbor
Frederick Kibler Spetnagel, A.B. <i>Ohio State University</i>	Chillicothe, Ohio
John Henry Yoe	Detroit

The students named below, enrolled in the College of Literature, Science and the Arts, also pursued studies in the Law School.

Ray Leslie Alexander	Yale
Sarah Julia Baicker	Nanticoke, Pa.
Horatio N. Chen	Tientsin, China
Edgar G. Howbert	Colorado Springs, Colo.
Samuel Charles Liebert	Whiting, Ind.
John Joseph Mauriel	Schenectady, N. Y.
Charles Raymond Miller	Vicksburg
Alexander Gordon Oliver	Alamosa, Colo.
Walter Edward Pear	Detroit
Homer D. Swander	Kalamazoo
Clarence Anton Trump	Minneapolis, Minn.
Lavern Gonne Whitney	Highland

The student named below, enrolled in the Colleges of Engineering and Architecture, also pursued studies in the Law School.

Robert Paul Wuerfel	Ann Arbor
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# College of Pharmacy

---

## FACULTY

Marion L. Burton, Ph.D., LL.D., *President*  
Frederick G. Novy, M.D., Sc.D. LL.D.  
Edward D. Campbell, B.S.  
Moses Gomberg, Sc.D.  
S. Lawrence Bigelow, Ph.D.  
Edward H. Kraus, Ph.D., Sc.D., *Dean*  
Harrison M. Randall, Ph.D.  
David Lichty, Ph.D.  
Hobart H. Willard, Ph.D.  
Walter F. Hunt, Ph.D.  
Floyd E. Bartell, Ph.D.  
Clifford C. Glover, M.S., *Secretary*  
Clifford C. Meloche, Ph.D.  
Chester S. Schoeppel, Sc.D.  
Herbert W. Emerson, B.S., M.D.  
Charles H. Stocking, B.S.  
Phillip B. Hadley, Ph.D.  
Roy K. McAlpine, Ph.D.  
Alfred L. Ferguson, B.Pd., Ph.D.  
William J. McGill, M.S.  
Harold R. Snow, Ph.D.  
Leonard R. Wagener, Ph.C., M.S.  
Frederick F. Blicke, Ph.D.

## Assistants

George W. Collins, M.S.  
Alden F. Roe, B.S.  
Walter D. Strother, Ph.C.

## STUDENTS\*

Harry George Agaian  
Harry Groff Aument

Grand Rapids  
Detroit

---

\* A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another School or College of the University, indicated by an italic letter following the name, to-wit: *a*, College of Literature, Science, and the Arts; *e*, College of Engineering; *ca*, College of Architecture; *ed*, School of Education; *m*, Medical School; *l*, Law School; *d*, College of Dental Surgery; *g*, Graduate School.

Ernest Fredrick Bach	Sebewaing
†Frederic Warren Ballentine, a	Port Huron
Mitchell Crosby Bartlett	Detroit
Arvid Peter Bayne	Mulberry, Ind.
Thurman Leonard Bell	Detroit
Joseph Anthony Bendry	Baraga
Harold Ross Bowers	Earlville, N. Y.
Hazel Gladys Marie Brandt	Dundee
Leo Nathan Broad	Grand Rapids
Jess Yeoman Brown	Ann Arbor
Earl Albert Burk	Mt. Clemens
Clarence Ernest Burke	Cleveland, Ohio
Saul Cohen	Charleston, W. Va.
Teddy Cooper	Hagerstown, Md.
William Patrick Cusick	Detroit
Donald Elwyn Davis	Alliance, Ohio
William Howard De Cou	Detroit
Janette Flora Dorrance	Wyandotte
Andrew Carl Freitag	St. Joseph
Louis Gertzman	Cleveland, Ohio
Arthur James Gibson	Laurium
Oscar Charles Gorenflo	Detroit
William Frederick Gorenflo	Detroit
†Lucius Charles Gould, a	St. Charles
Harold Duane Grieve	Ann Arbor
Burton A. Groff	Lake Odessa
Cyril Franklin Hanft	Detroit
Ernest Linwood Harris, Jr.	St. Louis, Mo.
Louis Joseph Harris	Detroit
Matthew Katsuo Hayashi	Honolulu, Hawaii.
James Thomas Heard	Ontonagon
John Joseph Howbridge	Fort Wayne, Ind.
George Leo Ibbotson	Baraga
James Russell Kelly	Elmira, N. Y.
Carle James Kirchgessner	Grand Rapids
Margaret Ellen Koon	Ann Arbor
Paul Leroy Livingston	Grand Rapids
Lewis Hannibal Long	Detroit
David Donald Lonie	Ann Arbor
Ralph Henry Lubeck	Detroit
Kenneth James MacKenzie	Escanaba
Louise Hallman Mattern	Whiting, Ind.
Fabian Arthur Maurina	Vulcan
Thomas John Mills	Ann Arbor
Robert August Mitchell	Reed City
Harry William Muenchinger	Detroit
Willard Gilbert Murphy	Lyons
Erwin Muscovich	Mt. Clemens
Floyd Sumner Park	Almont

Ray Arthur Patelski	Aurora, Ill.
Justin Lawrence Powers	Pullman, Wash.
Leonard Dana Powers	Harbor Springs
Harvey Edward Panches	Grand Rapids
Bhaget Ram	Hati, India
Julio Ramirez	Mayaguez, P. R.
William Leighton Reames	Cassopolis
Charles Austin Ricksecker, Jr.	New York, N. Y.
Darwin Emerson Sacheroff	Erie, Pa.
Esther Charlotte Sandberg	Manistique
Blaine Allen Schnell	Wauseon, Ohio
Francis Charles Schriber	East Tawas
Walter H. Scott	Detroit
Haig John Sirmabeyekian	Detroit
Edwin Francis Sobolewski	Chicago, Ill.
Howard Everett Spafford	Antioch, Ill.
John Walter Starnes	Washington, D. C.
Walter Dennis Strother	West Milford, W. Va.
Stanislaus Paul Szule	River Rouge
Anita Travers Thompson	Great Falls, Mont.
Freeling Murray Truesdale	Erie, Pa.
Harlan Summers Van Horn	Ann Arbor
Edward Thomas Vennard	Maple City
Charles Stanley Waggoner	Ann Arbor
Madge Orlene Walborn	Chicago, Ill.
James Berman Walker, Jr.	Washington, D. C.
Joseph Wayne Warner	Davison
Frederic John Wenzler	Fort Wayne, Ind.
Helen Ruth Young	Fort Wayne, Ind.

# College of Dental Surgery

---

## FACULTY

Marion L. Burton, Ph.D., LL.D., *President*  
Neville S. Hoff, D.D.S.  
Warren P. Lombard, M.D. Sc.D.  
Frederick G. Novy, M.D., Sc.D., LL.D.  
G. Carl Huber, M.D.  
Louis P. Hall, D.D.S.  
Moses Gomberg, Sc.D.  
S. Lawrence Bigelow, Ph.D.  
Marcus L. Ward, D.D.Sc., *Dean*  
Cyrenus G. Darling, M.D.  
Russell W. Bunting, D.D.Sc.  
Chalmers J. Lyons, D.D.Sc.  
Ura G. Rickert, A.M., D.D.S.  
John J. Travis, D.D.S.  
Elmer L. Whitman, D.D.S.  
Harriet S. Taylor, M.D.  
Francis B. Vedder, A.B., D.D.S., *Secretary*  
Albert J. Irving, D.D.S.  
Reginald A. MacDonald, D.D.S.  
Robert B. Howell, D.D.S.  
Morris D. Mackoy, Ph.G., D.D.S.  
LaVerne H. Andrews, D.D.S.  
Erman O. Scott, M.S.(Chem.)  
Robert K. Brown, D.D.S.  
Hazel V. Kramer, A.B.  
Ralph H. Dimock, D.D.S.  
Henry Hicks, D.D.S.  
Hertha C. Hartwig, D.D.S.

## Demonstrators and Assistants

Faith E. Palmerlee, M.S.  
Henry A. Anderson, D.D.S.  
Freeman B. Hover, D.D.S.  
George L. Lockwood, D.D.S.  
Leslie F. Rittershofer, D.D.S.  
Henry W. Shields, D.D.S.

## Special Lecturer

Percival C. Lowery, D.D.S.

## STUDENTS\*

## RESIDENT PRACTITIONERS

James Olin Beavis, D.D.S.	Lansing
Frank Salem Cartwright, D.D.S.	Detroit
Philip Jay, D.D.S.	Detroit
William Hiram McCracken, D.D.S.	Detroit
George Raymond Moore, D.D.S.	Ottawa, Ohio
Frederick Allatt Obrock, D.D.S.	Cleveland, Ohio
Joseph James Tolan, D.D.S.	Ironwood

## FOURTH YEAR STUDENTS

Herbert Emil Arndt	Saginaw
Clarence Dale Ausum	Roscommon
Roscoe L. Barrus	Ovid
Glenn Earl Barton	Port Huron
Foster William Bevier	Big Rapids
Eugene Casimer Bielawski	Detroit
Gerald Samuel Black	Detroit
William Calvin Bowne	New Brunswick, N. J.
Max Brown Breier	Butler, Pa.
Joseph Henry Bresnahan	Detroit
Floyd Otto Brown	Toledo, Ohio
Ralph Myron Brown	Mount Pleasant
Dean Howard Brumm	Nashville
Walter Matthew Bullock	Little Falls, N. Y.
Rudolph Lee Burt	Bradford, Pa.
William J. Cary	Grand Rapids
Jean Huguenot Cilliers	Johannesburg, South Africa
Hazen Pingree Cole	Detroit
Lisle Eugene Cooper	Big Rapids
Paul Stanley Crane	St. Johns
Orra Ben Crego	Detroit
Samuel Budd Danto	Detroit
Arthur Gordon Davis	St. Louis
Johannes Strydom deKlerk	Mossel Bay, South Africa
Richard DeLoof	Holland
George Norman Deming	Detroit
Albert David Diamond	Paterson, N. J.
Marthinus Jacobus duPreez	Fouriesburg, South Africa

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Gilbert Clerc Ely	Waldron
James Alford Evans	Detroit
Fred Nelson Fazakerley	Paterson, N. J.
William Firestone	Cleveland, Ohio
Howard Robert Fisher	Palmyra, N. Y.
Alfred Irving Frankfurth	Detroit
Claude Thlesmier French	Battle Creek
Maurice Harvey Gantz	Detroit
Ray Horace Gelder	Nitro, W. Va.
Richard Everett George	Detroit
John Clark Giffen	Detroit
Allan Edward Gilmore	Michigan City, Ind.
Maurice Goldstick	Detroit
Arthur Daniel Graham	Dutton, Ont.
William Wolfe Greenburg	Windsor, Ont.
Walter William Grothaus, A.B. <i>Ohio State University</i>	Detroit
Harlow Isaac Hall	Detroit
Raymond Joseph Hallinen	Ellicottville, N. Y.
Mark Elliott Hanna	Ann Arbor
Samuel David Harris	Detroit
Gregory Benedict Hartman	Detroit
Herbert George Holmes	Scottville
Harold Lucien Houvener, Ph.G. <i>Valparaiso University</i>	Hastings
George Samuel Hubbard	Pontiac
Paul Harold Jeserich	Detroit
Parke Lee Jones	Cass City
Arthur James Junker	Coudersport, Pa.
Elmer John Justema	Grand Haven
David Jacob Kesden	Rochester, N. Y.
Phillip Nimrod Kief	Montevideo, Minn.
Richard Henry Kingery, B.S., <i>Michigan Agricultural College</i>	Buchanan
Olon Joseph Kinsel	Ithaca
Glenn Weston Koyl	Sault Ste. Marie
Herman Edgar Kozlow	Detroit
Stephanus Kruger	Venterstad, South Africa
Fern Harry Kutt	Munith
Willem Adrian LaGrange	Paarl, South Africa
James Francois LeGrange	Standerton, South Africa
Montagu Leveson	Johannesburg, South Africa
Maxwell Irving Loeffler	Detroit
Olaf Louis Loikree	Windsor, Ont.
Harley Freeman Lown	Detroit
Basil Emery Lowry	Portland
Harry White Lundahl	Ishpeming
Everett W. Lyon	Detroit
John Kenneth Lyons	Jackson
Frank Daniel McIntrye	Jackson
Johannes Lodewikus Marais	Boksburg, South Africa



Benton Irving Marks	Oscoda
Warren Franz Martin	Ann Arbor
William Carl Marx	Holyoke, Mass.
Rollo James Masselink	Big Rapids
Herman David Mast	Angola, Ind.
Harold Miller Matteson	Flint
Philip Ray Miller	Iron River
Vernard LeRoy Miller	Charlevoix
Warden Luft Moyer	Bellevue, Ohio
Christopher Joakim Mubayas	Detroit
Earl Joseph Mulcahy	Detroit
Edward Gerald Murphy	Dunkirk, N. Y.
Harold Robinson Nichols	Detroit
John Halley Nicholson	Detroit
Charles Fred Niendorf	Colon
Oliver Edward Nobert	Jackson
Martin Patrick O'Hara	Ann Arbor
Oscar Christian Olsen	Saginaw
Norris Beach Palmer	Ann Arbor
Lawrence Claude Perry	Detroit
William Scott Petersen	Escanaba
Tylar Eugene Phelps	Ann Arbor
Hubert Charles Phillips	Hillsdale
Roger Paul Powers	Marshall
John Abraham Raubenheimer	George, South Africa
Charles Reichner	New York, N. Y.
Robert Rein	Cape Town, South Africa
Verne Roscoe Richards	Detroit
Andrew Richardson	Sharon, Pa.
Harold Elroy Richardson	Detroit
Henry Elvyn Rickert	Wadsworth, Ohio
George Alexander Ritchie	Sault Ste. Marie
Merritt Rundel Roof	Climax
Johann Rorich	Kroonstad, South Africa
Donald William Ros'e	Grand Haven
Sydney David Samuel	Johannesburg, South Africa
Elsie Caroline Seitz, A.B.	Ann Arbor
DuVoid J. Shepard	Breckenridge
Samuel Chiam Silver	Detroit
John Frederick Sivula	Ishpeming
Ralph Frederick Sommer	Detroit
William Frederick Streit	Detroit
Louis Richard Swaab	Toledo, Ohio
Walter Elliott Taylor	Highland Park
Harry William Tustison	Pontiac
Karl Harold Valentine	Dunkirk, N. Y.
Merle Adin Vance	Nashville
Barend Arie VanderMeulen	Pretoria, South Africa
William Aloysius Vignetto	Hancock

Donald Merle Wagner	Delevan, N. Y.
Martin Morris Weisberg	Detroit
Paul Lester Wellman	East Lansing
Conrad Alexander Westman	Tustin
Raymond Leonard Wheaton	Ann Arbor
Cecil Ovid Wilcox	Ionia
Lyle Smith Wilhelm	Traverse City
Glenn Robert Wilkinson	Hartford
Max Winslow	Detroit
Curtis William Yorke	Ruscomb, Ont.
Glenn Franklin Young	Philipsburg, Mont.
William Gersen Zieve	Detroit
Walter Albert Zick	St. Joseph

## THIRD YEAR STUDENTS

Richard Dean Ament	Ypsilanti
Heinrich Johann Friederich Aufn'Orte	Pretoria, South Africa
Arthur James Badaczewski	Detroit
Karekin BeshGetoor	Detroit
Adolphe J. Bessie	Ann Arbor
Luster Franklin Best	Jackson
Jack Phillips Beukema	Grand Rapids
Herbert Edwin Blight	Flint
Barnett Braude	Capt Town, South Africa
Glenn R. Brooks	Chelsea
Marshall Earl Brushart	Burlington
Claire Wilfred Cartier	Charlevoix
John Richard Christner	Michigan City, Ind.
Elwyn Walter Cleary	Highland Park
William David Curran	Mt. Morris, N. Y.
Theodore Seaman Davis	St. Louis
Henry Darwin Didama	Cortland, N. Y.
William George Duncan	Ann Arbor
James Lee Elliott, A.B., <i>Atlanta University</i>	Atlanta, Ga.
Cortez Alfonso English	Gifford, S. C.
Allison William Haidle	Negaunee
George Alfred Hall	Detroit
Herbert Harrison	Detroit
Wesley Glenn Hayes	Edinboro, Pa.
Leroy Francis Hill	Fremont, Ohio
Edward Albert Hochman	Detroit
Earl George Keim	Sturgis
Jeremia Jesaja van Kraaijenburg	Carolina, South Africa
Henry Kuit	Grand Rapids
James Charles Lavens	Detroit
Herdis Leo Lewis, B.S. <i>Michigan Agricultural College</i>	Howell
Dirk Loubser	Vredenburg, South Africa
Julio Luzunaris (Bruno) B.S.	Ann Arbor
Donald Charles MacEwan	Kalamazoo

Sherod Lawrence Mengel	El Paso, Tex.
Ernest Carl Mohrlock	Chelsea
Charles Eugene Monroe	Paterson, N. J.
Bernard Leo Noonan	Little Falls, N. Y.
Ivor Eksteen Olen	Potchefstroom, South Africa
Edwin Ralph Olila	Ashtabula, Ohio
Jacob Michael Oswald	Crystal Falls
Timotheos Michael Papadopoulos, A.B.	Anatolia College Detroit
Max Bidwell Purdy	Pembina, N. Dak.
Walter Thomas Rogers	Detroit
Leslie Charles Rolfe	Crystal
Herbert Otto Schwarz	Watervliet
John Frederick Schwarz	Watervliet
Theuis Stoffberg	Magaliesburg, South Africa
Albin Leonard Swanson	Newberry
Curtis Orton Thompson	Vassar
Henry Max Vielmetti	Norway

## SECOND YEAR STUDENTS

Ralph Eric Allen	Bloomington
Edgar Samuel Bacon	Ann Arbor
Harry Bame	Toledo
Avery Allen Bartlett	Detroit
Julian George Belt	Holland
Roswell Gordon Boyce	Harrisville
Benn David Brodkey	Sioux City, Iowa
Eugent Kiernan Buck	Youngstown, Ohio
Clifford Chappius Buehrer	Ann Arbor
Joseph Warren Burba	Detroit
Selwyn Patteson Burrige	Kalamazoo
George Nye Cannon	Battle Creek
Bruce Edwin Carl	New Haven
Philippus Mare Coetzee	Belfast, South Africa
Abraham Cohn	Highland Park
Harold Courtright	Benton Harbor
William Warren Crebs	Bellevue, Ohio
John Randle Crissman	Washington
Firmin James Cross	Saline
Charles Curtis	Detroit
Ford Kenneth Daines	Highland Park
John Baylis Dixon	Corning, N. Y.
Haven Fraxelle Doane	Toledo, Ohio
Alfred Dallet Goldberg	Monroe
Edward John Guenther	Crystal Falls
John Edward Hecko	Michigamme
Walter William Heidenreich	Marshall
Henry Heiman	Lockport, N. Y.
Joseph Hellmann	Brandfort, South Africa
Douglas A. Hopkins	Detroit

Johannes Petrus Immelman  
 Henry Emil Jacobs  
 Frank Jacob Kuiper  
 Clifford Harold Lay  
 Raphael Donald Lee  
 Murray Angus Leitch  
 Leo Joseph L'Heureux  
 Walter James McCarthy  
 Harold Douglas MacGregor  
 Bernhardt Toivo Micklow  
 William Forster Miller  
 Donald Clark Mosher  
 Ruth Marie Mountain  
 William Francis Neville  
 Edward Matthew Nolan  
 Ira Nordhoff  
 Harry Jay Olmstead  
 Frank Clement Pageau  
 Frederick Francis Pfeiffer, Jr.  
 Paul Bradley Henry Pike  
 Kenneth Hammond Platt  
 George Qua  
 †Arthur Henry Reimann, a  
 George William Robertroy  
 E. Romle Romine  
 Edward Rubenstein  
 Harold Fredric Schmidt  
 Louis Schultz  
 Harold Fred Sell  
 Henry Joseph Shannon  
 Harold Bailey Sharp  
 Norman Dwight Smith  
 Clarence Brower Somers  
 Raymond Frederick Staebler  
 George Burnham Stanford  
 Frederick Raymond Storm  
 Norman Hall Strong  
 George Rush Swintz  
 Sidney Stevens Tiesenga  
 Bernard Wainstein  
 Harmond Jay Webb  
 Frank Thomas Whitney  
 Leonidas Hubbard Williams  
 Robert Seymour Wilson  
 Harold Glenn Winkler  
 Andrew Pyl Wykkel

Paarl, South Africa  
 Hamtramck  
 Grand Rapids  
 St. Thomas, Ont.  
 Madrid, N. Y.  
 St. Thomas, Ont.  
 Windsor, Ont.  
 Corning, N. Y.  
 Ann Arbor  
 Marquette  
 Ann Arbor  
 Jackson  
 Olean, N. Y.  
 Chicago, Ill.  
 Schenectady, N. Y.  
 Muskegon  
 Detroit  
 Detroit  
 Corning, N. Y.  
 Ann Arbor  
 Bay City  
 Ann Arbor  
 Iron River  
 Mt. Clemens  
 Pontiac  
 Johannesburg, South Africa  
 Detroit  
 Crystal Falls  
 Adrain, Minn.  
 Saginaw  
 Detroit  
 Buffalo, N. Y.  
 Detroit  
 Ann Arbor  
 Midland  
 Detroit  
 Detroit  
 South Bend, Ind.  
 Holland  
 Johannesburg, South Africa  
 Gregory  
 Ann Arbor  
 Detroit  
 Ripley, N. Y.  
 Ann Arbor  
 Kalamazoo

## FIRST YEAR STUDENTS

Albert Jack Altman

Detroit

John Bielawski	Detroit
Walter Esmonde Blair	Corning, N. Y.
Wilfrid Athanase Bourbonnais	Detroit
James Harold Burns	Toledo, Ohio
Willard Matthew Campbell	Traverse City
Herman Lloyd Coburn	Zeeland
Walter Whitley Collins	Negaunee
David Junior Collon	Grindstone City
Clare Manson Conger	Ann Arbor
Raymon Cordova	Ciales, P. R.
Maurice Croll	Detroit
Emrick McLay Crosby	Highgate, Ont.
Richard William Deeds	Lima, Ohio
Elmer Elsworth Ettinger	Lima, Ohio
Murray E. Feinburg	Albany, N. Y.
Birney Frank Fellows	Columbiaville
Lee Charles Fowle	Dowagiac
George Phil Francis	Manistee
Paul W. Freshwaters	South Haven
Edward Charles Gifford	Coldwater
Henry Asbahr Girardin	Wyandotte
Howard B. Green	Saginaw
Fred Haan, A.B. <i>Calvin College</i>	Grand Rapids
Edward Simon Hatchadourian	Detroit
Roy Emil Hawkinson	South Bend, Ind.
John A. Henkel	Greenville
Daniel Leo Hogan	Linden
Charles Tyler Holmes	Flint
Alfred Holzman	Brooklyn, N. Y.
Kenneth Malcolm Hopkins	Detroit
Herbert Benjamin Huehl	Dexter
Henry Roach Huff	White Pigeon
Lawrence Vernon Kimbrell	Detroit
Frank Edward Koepel	Beacon Hill
Irwin Isadore Lappin	Detroit
Rudolph Ernest Larson	Detroit
Sherwood R. Lee	Wayne
Wallace Earl Lee	Essex, Ont.
Andrew Ervin Leuenberger	Saginaw
Bernard Edward Luck	Crystal Falls
Duane Burr Lurkins	Ypsilanti
Forrest Gordon McGuigan	Dearborn
†Felix Paul Malinowski, A	Hamtramck
John Steve Maloney	Detroit
George Edgar Meads	Tecumseh
Ervin Eugene Merriman, A.B. <i>George Washington University</i>	Huntington, Ind.
Oney Richard Micklow	Marquette

†Frixos Lambros Mitilineos, a, B.A., <i>French College St. Benoit</i>	
	Detroit
Henry Ferns Moore, B.S., E.M., <i>Michigan College of Mines</i>	
	Benzonia
Hayden Elmo Neely	Gladwin
Kenneth Donald Newton	Pontiac
Rannells Clinton Owens	Battle Creek
Luther Cromley Plymale	Highland Park
William Lewis Postles	Detroit
Edmond Field Randall	Ann Arbor
James Joseph Reilly	Detroit
William Hart Riley	Grant
John William Rimbach	Easton, Pa.
Waldomar Roeser	Pontiac
Victor Francis Ross	Cape Town, South Africa
E. W. Royer	Bronson
†Domenic A. Sanzobrino, a	Willoughby
Robert Inman Sealby	Marine City
Peter Joseph Slazinski, B.S., <i>University of Detroit</i>	Detroit
Stanley Lawson Smith	Massena, N. Y.
Benjamin Spector	Newark, N. J.
Carl Sylvester Sullivan	Detroit
Monroe Bartholomew Sullivan	Grand Rapids
Louis Jules Swartz	Detroit
Joseph Alphonsis Sweeney	Mt. Pleasant
Maurice Dean Tonnelier	Eau Claire
Harry Abe Topcik	Detroit
Robert Garfield Turner	Jackson
Jacob Richard Van Loo	Grand Rapids
John Preston Van Osdol	Peru, Ind
Nicholas E. Vlasis	Highland Park
Stuart Horton Ward	St. Johns
Don Carlos Wheeler	Ann Arbor
Harris Lynn Wilson	Paw Paw
Enoch A. Yates	Saginaw

## SPECIAL STUDENTS

Firn Roiding Harding, D.D.S.	South Lyon
Ira Alfred Lehman, D.D.S.	Detroit
Stanley Alexander Mackenzie, D.D.S., <i>Chicago College of Dental Surgery</i>	Detroit

## HYGIENISTS

Olive Chapin	Jackson
Esther Lenore Cole	Petoskey
Winnifred Mae Hapeman	Lowell
Estelle Sparling	Ann Arbor
Czrena Bertelle Stanley	Hanna, Alta.
Winifred Caroline Whitmore	Owosso

# School of Education

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## FACULTY

Marion L. Burton, Ph.D., LL.D., *President*  
Allen S. Whitney, A.B., LL.D., *Dean*  
James B. Edmonson, A.M.  
George E. Myers, Ph.D.  
Calvin O. Davis, Ph.D.  
Charles S. Berry, Ph.D.  
Guy M. Whipple, Ph.D.  
Clifford Woody, Ph.D.  
John Sundwall, Ph.D., M.D.  
Warren E. Forsythe, B.S., M.D.  
Arthur B. Moehlman, Ph.D.  
Fielding H. Yost, LL.B.  
George L. Jackson, Ph.D.  
Cleo Murtland, A.M.  
Thomas Diamond  
George A. May, M.D.  
Raleigh Schorling, A.M.  
Margaret Bell, B.S., M.D.  
George E. Little, B.S.  
E. Lewis Hayes, B.S.(M.E.)  
Elmer D. Mitchell, A.M.  
Frank R. Kepler  
Thomas L. Purdom, A.M.  
Manley E. Irwin, A.M.  
Hellen R. Shambaugh, A.B.

---

Margaret Cameron, A.B., *Secretary*  
Marvin S. Pittman, Ph.D.  
Walter L. Harris, A.M.  
Frank Whitehouse, A.M.

## Lecturers

Stuart A. Courtis, B.S.  
Leslie A. Butler, A.M.  
And other members of the University Faculties.

## STUDENTS\*

Iris Amy Abbey, A.B., <i>Taylor University</i>	Upland, Ind.
John Thomas Ackerman, Jr.	Flint
Alberta Twyman Adair	Odessa, Mo.
Daniel Britton Adams	Fenton
Ruth Idell Adriance	Paw Paw
Minnie Alexander	Gaylord
†Helen Louise Allen, g, A.B., <i>Carnegie Institute of Technology</i>	
Ross Lorraine Allen	Ann Arbor
Mary Henrietta Allshouse	Newark, N. J.
West Joseph Altenburg	Irwin, Pa.
†Robert J. Armstrong, a	Detroit
Forrest Glenn Averill	Belding
Eula Valina Avery	Ravenna
†Frank Marion Ayres, g	Ann Arbor
Richard George Babcock	South Haven
Harriet Agnes Bader, A.B., <i>Indiana State Normal, A.M.</i>	Royal Oak
<i>Columbia University</i>	
Burt M. Baird	Ann Arbor
Edna Marie Baird	Wayne
Norma Barlow	Marine City
Maurine Foote Bauer	Barlow, Ky.
†Prudence Emly Beasley, ex	Ann Arbor
Elsie Minna Beck	Detroit
Hildegard Regina Beck	Detroit
Reuben Daniel Behlmer	Detroit
Rowena Annette Benson	Batesville, Ind.
Sophie Caroline Benzin	Munson
Doris Bessenger	Ann Arbor
Matilda Foley Bishop	Detroit
Jessie Sylvia Bixby	Luzerne
Hazel Olive Black	Petoskey
Jessie Catharine Blendall	Caro
Ernest George Bockoven	Kearsarge
Dorothy Loretta Bogan	Grand Rapids
Norma Elizabeth Bowbeer	Detroit
†Ruth Constance Bowen, a	Wyandotte
Mac George Bowles	Ypsilanti
†Mildred Leone Boyce, a	Muskegon
	Tecumseh

\* A dagger (†) preceding a student's name signifies that he also pursued studies, for the whole or a part of the year, in another School or College of the University, indicated by an italic letter following the name, to-wit: a, College of Literature, Science, and the Arts; e, College of Engineering; ea, College of Architecture; m, Medical School; l, Law School; p, College of Pharmacy; d, College of Dental Surgery; g, Graduate School.



Thelma Evangeline Boyd	Detroit
Louise Alreca Bristow	DeKalb, Ill.
Stanley Oswald Broome	Mount Clemens
Ruth Henney Brown	Ann Arbor
Mildred Mae Buys	Decatur
Anita Weston Cain	St. Louis, Mo.
Illa Muffet Caldwell	Oxford, Wis.
Lydia Lucretia Case, A.B., <i>Michigan State Normal College</i>	Ypsilanti
Anna Crosby Cawley, A.B.	Morenci
Edward Walter Chambers	Niles
Laurence MacFarlane Clark	Clinton
Jennie Merinda Clow	Detroit
Marion Elizabeth Collins	Detroit
Edmund Martin Conklin, A.B., <i>Michigan State Normal College</i>	Detroit
Harry Timothy Conley	Superior, Wis.
Armina Elizabeth Converse	Ann Arbor
Claire Carl Cook	Angola, Ind.
Paul Arthur Cook	Muskegon
John Richard Covington	Unionville, Tenn.
Margaret Wilhelmina Cramer	Pigeon
Mary King Davenport	Ann Arbor
Dorothy Marie Davis	Ann Arbor
Russell Warner Davis	Flint
Zoie Minnie Joy Davis	Fremont
Calvin Dorr Demaray	Vermontville
Coral Edison Demaray	Spring Arbor
Winifred Roberta Denman	Helmer, Ind.
Joanna Jo Dewitt	Hudsonville
Evelyn Mary Dohany	Detroit
Grace Elizabeth Domboorajian	East Lansing
William Jennings Donnelly	Cadillac
†Etruria Ivernia Doster, a	Dexter
Frances Ann Doster	Dexter
Clara Elizabeth Dowling	Detroit
Loretta Elizabeth Doyle	Marquette
Adele Anna Dreyer	Detroit
†Flora Mildred Duffendack, a	Cole Camp, Mo.
†Faith Eldora Dumas, a	Detroit
Ruth Ophelia Dunbar	Grand Rapids
Mary Mathews Early	Detroit
Agnes Dorothy Eason	Ravenna
Frederick Wiggins East	Ann Arbor
†Evelyn Elizabeth Eastman, g, ex	Lowell
Thomas Leighton Edwards	Central Lake
Anna Marie Engel	Highland Park
Helge Gustave Erickson	Norway
Meldon Ada Everett	Kansas City, Mo.

†Irene Rebecca Field, <i>a</i>	Detroit
Fred Christian Fischer, A.B., <i>Michigan State Normal College</i>	Belleville
William Robert Flora	Muskegon
Gertrude Louise Flower	Detroit
Muriel Ruth Fox	Central Lake
Guy Carleton Freeborn	Hart
Sarah Leah Friedman	Tawas City
Miriam Smit Gabriel	Detroit
Lucile Olive Garber	Bay City
Ruth Gassman	Detroit
Eldon Cleo Geyer	Ypsilanti
Martha Jean Gill	Muncie, Ind.
Percy Howard Ging	Duluth, Minn.
Josephine Mildred Giroux	Grand Rapids
Mildred Ruth Goetz	Sault Ste. Marie
Edna Grace Goodrich	Ann Arbor
Earl Frederick Gowen	Cass City
Alton Clarence Granger	Tekonsha
Hazel Laura Green	Detroit
Herbert Clair Greenland, A.B., <i>Bucknell University, A.M.</i>	Pittston, Pa.
Edith Sedelbauer Grettenberger	Grand Rapids
Imogene Leah Grey	Detroit
Alliene Calhoun Grigsby	Louisville, Ky.
Dorothea Mathilda Grix	Detroit
C. Margaret Grooms	Marshall
Clarence Lester Grove	Shady Grove, Pa.
Germaine Gladys Guiot	Kalamazoo
Lucy Ella Hainbecher	Reed City
Muriel Frances Birmingham Hall	Detroit
Birt Mervin Hamill	Corunna
Charles Frederick Hamilton	Charlevoix
Howard Heald Hamilton	Detroit
Alvin H. Hanson	Milwaukee, Wis.
†Myrtie Mae Harriman, <i>ex</i>	Detroit
Elizabeth Rosetta Hascall	Detroit
†Sadyebeth Heath, <i>a</i>	Detroit
Ethel Deressa Hedrick	Ypsilanti
Harriet D. Helmer	Parma
Ruby May Hempleman	Detroit
†Olive Grace Henderson, <i>a</i>	Detroit
William Peter Henderson	Detroit
George Black Hester	Detroit
Verl James Hilton	Ann Arbor
Erma Beatrice Hodgson	Bay City
William Frederick Hoheisel	Norway
Louis Henry Hollway	Ann Arbor
Ervin Howard	Lake Odessa

Foster Irving Huber	Marcellus
Lucile Pearl Hutchinson	Dutton
Robert Vien Ingle	Ann Arbor
Alice Teresia Ingmanson	Cadillac
Nelly Sophia Ipland	Detroit
Ferris Columbus Jackson	Ann Arbor
Maude Louisa Jayne	Grand Rapids
Ellice Jessop	Williamston
†Evlyne Ida Johnson, <i>a</i>	Reed City
Sidney Russell Johnson	Terre Haute, Ind.
Helen Isabelle Jones	Kalamazoo
Robert Wright Jones	Grand Rapids
Nellie May Kahoe	Ann Arbor
Donald Stewart Kelley	Hastings
Earl Allan Kelly	Cadillac
Lucile Kennedy	Grand Rapids
Helen Pollmar Keydel	Detroit
†Harold Thomas Kinley, <i>a</i>	Flint
Harold Lake Kinyon, A.B.	Quincy
Essey Armanilla Klumph	Dearborn
Edythe Dorothy Koebbe	Chelsea
Pauline Veronica Kolar	Cleveland Heights, Ohio
Eugene Franklin Lampe	Burr Oak
Mary Alice Langthorne	Brooklyn, N. Y.
Norman Paul Lasca	Detroit
Bernice Elizabeth Learmont	Croswell
Sarah Etta Levin	Detroit
Phyllis Dorothy Lewis	Crown Point, N. Y.
Esther Sofia Lindquist	Iron River
Marian Augusta Lindsley	Escanaba
Clinton Claude Lippert	St. Louis
Margaret Helena Lobker	Coral
Mary Louis Lohr	Grand Rapids
Margarita Julia Looby	Detroit
Helen Ann Lowell	Lansing
Harriet Belle Lowing	Jenison
Wilmoth Frances Luppold	Case, Mo.
Herbert Henry Maas	Chicago, Ill.
Stanley McBride	Ann Arbor
Ethel Agnes McCormick	Detroit
Joseph Howard McCulloch	Ypsilanti
William Curtis MacDougall	Detroit
Lillian Montrey McEachern, B.S., <i>Bethany-Peniel College</i>	Ann Arbor
Jennie McGuffie	Munith
Marjorie Ysobel MacKenzie	Detroit
Ruth Virginia McLaren, A.B.	Ann Arbor
Ellen Maria Maclean	Flint
Marguerite Foley Markham	Alpena

Frederika Marston	Chicago, Ill.
Emil Lavern Massey	Detroit
Rosemary Josephine Matgen	Detroit
Alice Blair Mellinger	Toledo, Ohio
M. Marie Mertz	Saginaw
Evelyn Julia Metz	Saginaw
Alleen Mattox Miller	Detroit
Evelyn Marie Perrin Miller	Milan
Helen Rose Miller	Chelsea
A. L. Mills	Hesperia
John Richard Moore	Butler, Ind
Julia V. Moorhead	Pittsburgh, Pa.
Ruth Marion Mueller	Benton Harbor
Marion Margaret Munro	Detroit
†Charles Frederick Murdock, <i>g</i>	Detroit
Edith Vivian Nafe	Detroit
Clara Beatrice Nancarrow	Painesdale
Ileta Metha Nicolai	Hopkins
Vivian North	Ann Arbor
Thomas S. Nurnberger	Manchester
Lloyd Warner Olds, A.B., <i>Michigan State Normal College</i>	Ypsilanti
Hazel May Olmstead	Nashville
Mildred Claire Packard	Merrill
†Richard Otto Papenguth, <i>m</i>	Manistee
†Lena Emma Paris, <i>g</i>	Morley
Claudia Lucille Parker	Hopkins
H. Frederick Parker	Hastings
Violet Esther Peacock	Detroit
Aldean Pear	Saugatuck
Inez Gertrude Pechtel	Carson City
Alice May Phillips	Highland Park
Ellen Pilcher	Highland Park
Harriet Louise Porter	Adrian
William Henry Puckelwartz	Chicago
Melvin Garrison Ralph	Marshall
Jean Helen Ramsey	Detroit
Mitchell Otis Read	Ludington
Chester William Reichle	Buffalo, N. Y.
Alice Lyle Reid	Ypsilanti
†Flora Boston Reinhardt, <i>a</i>	Ann Arbor
Lila Estelle Reynolds	Battle Creek
Mary Ellen Rich	Mancelona
Della John Riddering	Grand Rapids
Harry H. Rigg	Negaunee
Catherine Meade Riggs	Jonesville
Blanche Harriet Robison	Clinton
Ferdinand Almon Rockwell	Jackson
Harold Benjamin Ruhl	Detroit

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William Cecil Ryder	Hartford
Harriette Sewell Sample	Ann Arbor
Harry Lawrence Samuel	Everett, Mass.
Mathias Magnus Sanders	Altoona, Pa.
Wilmont Reid Sanford	Ann Arbor
†Myrtle Adeline Sanzenbacher, a	Toledo, Ohio
Ingeborg Schaefer	Detroit
Milton George Schancupp, A.B.	Fenton
Edmarie Elizabeth Schrauder	Monroe
Henry Arthur Schrupp	Niles
Carleton Henry Shaver	Ypsilanti
Leslie Richmond Silvernale	Menominee
Raphael Couple Simonsky	Toronto, Ont.
†Janet Kellogg Sinclair, a	Toledo, Ohio
William Franklin Sinnigen, Jr.	Paterson, N. J.
DeVera Alta Slocum	Owosso
Marjorie Gladys Smith	Detroit
Mary Martha Smith	Grand Haven
Theodora Elizabeth Smith	Detroit
Frances Margaret Speaker	Richmond, Ill.
Alta Louise Speers	Williamston
*Martha Ruth Speirs, A.B., <i>Taylor University</i>	Farson, Iowa
Sarah Adah Squires	Pasadena, Calif.
Harry Denver Staggs	Terre Haute, Ind.
Catherine Louise Stanton	Oxford
Eleanor Harvey Steele	Ann Arbor
Frances DeRemer Steinmuller	Bethlehem, Pa.
Helen Alice Goodier Stephenson	Detroit
†Esther Marguerite Stevens, a	Detroit
Thelma Elizabeth Stevenson	South Haven
Carolyn Violet Stover	Fort Wayne, Ind.
John MacTavish Stuart	Detroit
Stella Minerva Sturos	Laurium
Marjorie Seely Sweet	Ypsilanti
Anthony Henry Tate	Dearborn
Merle Eliza Taylor	Sparta
Ross Potratz Tenny	Big Rapids
Russell Thomas	Glen Lyon, Pa.
H. B. Thompson	Marine City
Caroline Montgomery Thurn	Ann Arbor
M. Bernece Tompkins	Detroit
Elmon Louis Vernier	Butler, Ind.
Richard D. Vick	Toledo, Ohio
Artia Sherlock Vickers	Ann Arbor
J. Allen Vogt	Saginaw
George Edward Voos, Jr.	Crystal Falls
Wendell Vreeland	Ann Arbor

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\*Died March 21, 1924.

Olive Waggoner	Bad Axe
Dorothy Anne Wall	Buffalo, N. Y.
Fred Taylor Wall	Birmingham
Gretchen Eleanor Walz	Reese
Elizabeth Jane Wearne	Detroit
Jacob David Weisberg	Bayonne, N. J.
Dan August Weiss	Flint
Dorothy Mae Wentz	Detroit
Dorothy Arlene Westphal	Ann Arbor
Doris Martha Wheeler	Saline
Katherine Mae Wheeler	Saline
Blanché Elenore Whitney	Alanson
Clarence Jason Whitney	Port Sanilac
Edna Grace Whitney	Ann Arbor
Letty Minerva Wickliffe	Ann Arbor
†Oliver Frank Williams, <i>e</i>	St. Louis, Mo.
Frances Helene Wilson	Durand
†Pauline Elizabeth Wilson, <i>a</i>	Detroit
†George Wilton Wise, <i>a</i>	Birmingham, Ala.
†Louis Wollenberger, <i>a</i>	Evansville, Ind.
Emily Wood	National Mine
†Mary Elizabeth Wooldridge, <i>a</i>	Belding
Linda Barbara Yageman	Detroit
Anita Evelyn Youell	Decatur
Gladys I. Young	Big Rapids
Manley Elizah Young, B.S., <i>Michigan Agricultural College</i>	Saginaw
†Fred Zierer, <i>a</i>	Detroit

## EXTRA MURAL CLASSES

The following students are enrolled in regular University classes meeting in neighboring cities under the provision of the Smith-Hughes Act of Congress:

Floyd Cornelius Allison	Detroit
Alois John Arasim	Detroit
Minnie McNight Arnold	Jackson
Parks Leslie Bailey	Detroit
Helen Heather Beish, A.B., <i>University of Nebraska</i>	Detroit
Arthur Eldridge Berg	Detroit
Donald Cecil Black, B.S., <i>Michigan Agricultural College</i>	Detroit
†Dwight Carroll Bowen, <i>g</i> , A.B., <i>Michigan State Normal College</i>	Detroit
Garner Milton Bowlby	Detroit
Ernest Lyle Browe, B.S., <i>Michigan Agricultural College</i>	Detroit
Ruth Carlisle	Detroit
Mary Stieff Carpenter	Detroit
Edward Prescott Chandler	Saginaw
†Grover Cleveland Chostner, Ph.C., A.B., <i>Valparaiso University</i> , <i>ex</i>	Detroit
Charles Henry Christie	Saginaw
Otis Gerald Cites	Detroit
Mary Clara	Jackson

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Harlan Austin Colburn	Battle Creek
Mary Conrada	Jackson
Homer Chauncey Davis	Battle Creek
Myrtic Divine	Jackson
Arthur Dondineau, A.B., A.M.	Detroit
John William Donnelly	Detroit
Margaret Elizabeth Ederle	Battle Creek
†Ethan Ellis Edloff, g. B.A.E.	Detroit
Frederick Stanley Everest	Battle Creek
Benjamin Shipp Frost	Detroit
Roy Gangwisch	Detroit
Earl R. Gaskill	Detroit
Gertrude Gibbons	Grand Rapids
John Samuel Giese	Detroit
Bertha Giffen	Detroit
†Melvin Judd Gillard, g. A.B., <i>Northwestern University</i>	Detroit
Claude Lounsbury Going	Detroit
Casius Morton Goold	Saginaw
Gordon Roland Grant	Battle Creek
Max Silsby Grant	Battle Creek
Edward L. Grieger	Detroit
Merrill Clarence Hamburg	Detroit
Robert Dewey Horn	Lowell
William M. Jones	Detroit
Melvin LaRoy Jungerheld	Saginaw
Guy Venoy Kantz	Detroit
Carl Edwin Karlstrom	Detroit
Frank Roy Kepler	Detroit
Paul August Kerber	Detroit
Elmer Albert King	Detroit
Maye Bell Knowles	Jackson
Edward William Kurtz	Detroit
Warren Kenneth Layton, A.B., <i>Northwestern University, A.M., University of Illinois</i>	Detroit
†Abigail Nicholas Lennox, ex	Detroit
Henry Irgens Lind	Detroit
Gladys M. Little	Detroit
Luella Roberta Manley	Jackson
Bess Elmira Martindale	Jackson
William Charles Morgan	Saginaw
Mina May Mosher	Battle Creek
Margaret E. Munson	Jackson
Lillian Mathilda Nelson	Battle Creek
Alva Raymond Parker	Detroit
Thomas Francis Reynolds	Detroit
Lisle George Ritchie	Detroit
Amasa Curtis Roberts	Saginaw
Henry Nicholas Roys	Detroit
Arthur Patrick Smith	Saginaw

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Charles Roy Smith	Battle Creek
Margaret Ellen Street	Detroit
Emil Christian Trommer	Saginaw
Harold John VanWestrienen	Royal Oak
Fred Albert Voelker	Royal Oak
George Melvin Wilkinson	Saginaw
Elmer Arthur Wolter	Battle Creek
Freda Anna Yenney	Detroit



# Graduate School

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John R. Effinger, Ph.D.

William C. Hoad, B.S.

Walter B. Ford, Ph.D.

Guy M. Whipple, Ph.D.

Harley H. Bartlett, A.B.

---

Edward S. McCartney, Ph.D.

## STUDENTS\*

†Ernest James Abbott, <i>e</i>	Detroit
Lloyd Ackerman, A.B. in Ed., <i>State Teachers College of</i>	
<i>Colorado</i> , A.B., <i>University of Colorado</i>	Ann Arbor
Zoology	
John R. Adams, A.B., A.M.	Ann Arbor
Mary Elizabeth Overman Adams, A.B.	Ann Arbor
English	
Otto Vincent Adams, B.S., <i>Colorado Agricultural College</i>	
Highway Engineering and Highway Transport	Fort Collins, Colo.
Florence Grace Adcock, A.B., <i>Knox College</i>	Galesburg, Ill.
Zoology	

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\* The department of specialization selected by candidates for an advanced degree is indicated under their respective names.

A dagger (†) preceding a student's name indicates that he also pursued studies, for the whole or part of the year, in some other School or College of the University, indicated by an italic letter following the name, to-wit: *a*, College of Literature, Science, and the Arts; *e*, College of Engineering; *ea*, College of Architecture; *ed*, School of Education; *m*, Medical School; *l*, Law School; *p*, College of Pharmacy; *d*, College of Dental Surgery.

- Edward Blake Allan, B.A., Sc., *University of Toronto*  
Hamilton, Ont.
- Adah Dott Allen, A.B. Detroit
- Frank Phoenix Allen, A.B. Detroit
- †Helen Louise Allen, A.B., *Carnegie Institute of Technology*, ed  
Ann Arbor
- Margaret Minerva Allen, B.S., *Denison University*, A.M.  
Zoology Evanston, Ill.
- Clara Janet Allison, A.B., A.M., *Columbia University* Ypsilanti
- Amos Carey Anderson, A.B. Cambridge Springs, Pa.
- Psychology
- Flora Larned Anderson, A.B. Detroit
- Education
- John Edward Anderson, A.B. Dexter
- Botany
- Leigh Charles Anderson, B.S., (Chem.), M.S. (Chem.) Muskegon
- Chemistry
- William Birger Anderson, Ph.B., *The University of Chicago*,  
A.M. Chicago, Ill.
- Romance Languages
- Elsie Venner Andrews, A.B., *Michigan State Normal College*
- English Ypsilanti
- Robert Cooley Angell, A.B., A.M. Ann Arbor
- Sociology
- †Gilbert Appelhof, Jr., a Detroit
- William Andrew Archer, B.S., *New Mexico College of*  
*Agriculture and Mechanic Arts* Ann Arbor
- Botany
- Eli Jacob Arnot, A.B., *Indiana University*, B.D., *The University*  
*of Chicago* Ypsilanti
- Kikusaburo Asai, Graduate, *Osaka College of Technology*  
Osaka, Japan
- Stephen Stanley Attwood, B.S.E., M.S. Ann Arbor
- †Frank Marion Ayres, ed South Haven
- Education
- Werner Emmanuel Bachmann, B.S.E., Detroit
- Chemistry
- Egbert King Bacon, B.S., M.S. Sault Ste. Marie
- Chemistry
- Russell Swett Bacon, B.S., *University of California* Alameda, Calif.
- Forestry
- Grace Bagby, A.B., *University of Kansas* Flint
- Francis Louis Bailey, A.B. Ann Arbor
- Education
- Read Bain, A.B., *Willamette University*, A.M., *University of*  
*Oregon* Eugene, Ore.
- Sociology
- Lois Muriel Baker, A.B. Flint

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Viletta Ellen Baker, A.B., <i>Indiana University</i>	Winchester, Ind.
Latin	
Harold Ballou, A.B., <i>Cornell University</i>	Ithaca, N. Y.
Romance Languages	
Maurine Bamber, B.S., <i>Knox College</i>	Galesburg, Ill.
Zoology	
Edith Mary Barley, A.B.	Detroit
Gerald Barnes, A.B., <i>Amherst College</i> , A.M., <i>University of Cincinnati</i>	Flemington, N. J.
Sociology	
Robert Ethelbert Barney, M.D.	Cleveland, Ohio
Dermatology and Syphilology	
†Leonard Ihrig Barrett, a	Ann Arbor
Grover Cleveland Bartoo, A.B.	Kalamazoo
Education	
Charles Stewart Baxter, A.B.	Detroit
Education	
Dow Vawter Baxter, B.S.F., M.S.F.	Hillsboro, Ill.
Botany	
Mildred Frances Baxter, A.B., <i>Vassar College</i> , A.M.	Springfield, Mass.
Psychology	
Eleanor Riley Beach, B.S., <i>Cornell University</i>	Rochester, N. Y.
Iva Beard, A.B., <i>Georgetown College</i>	Shelbyville, Ky.
Latin	
Albert Joseph Bedard, B.S.(C.E.), <i>University of Maine</i>	Rumford, Me.
Highway Engineering and Highway Transport	
Florence Begeman, A.B., <i>Iowa State Teachers College</i>	Cedar Falls, Iowa
Mathematics	
Ralph Leroy Belknap, B.S.E.	St. Clair
Geology	
Abram Cornelius Benjamin, A.B., A.M.	Urbana, Ill.
Philosophy	
Eula Vivian Schlaack Benoit, A.B.	Flint
Walter Gerald Bergman, A.B., <i>Greenville College</i>	Greenville, Ill.
Psychology	
Henry Joseph Berkowitz, A.B., <i>University of Cincinnati</i>	Detroit
Nora Lucinda Bethel, A.B.	Staunton, Ill.
English	
Helen Bidwell, A.B.	South Lyon
English	
Adolph Edmund Bigge, A.B.	Copemish
German	
George Edmund Bigge, A.B., A.M.	Ann Arbor
Helen Cornelia Bishop, A.B., <i>Pacific University</i> , B.S., <i>Columbia University</i> , A.M.	Ann Arbor

Earl Glen Blackstone, A.B., <i>University of Iowa</i> , A.M., <i>ibid</i> Education	Detroit
Clarence Harlow Blanchard, A.B., <i>Albion College</i> , A.M. Education	Detroit
Frances Bradshaw Blanshard, A.B., <i>Smith College</i> , A.M. <i>Columbia University</i>	Ann Arbor
George Moyer Bleekman, B.S.E., M.S.E.	Ann Arbor
Paul Nestel Blessing, A.B., <i>Swarthmore College</i>	Ann Arbor
George William Bloemendal, B.S., <i>Michigan Agricultural College</i> Physics	Chicago
†Joseph Chaim Blumenthal, <i>a</i> Philosophy	Detroit
Edwin Henry Boerth, B.S., <i>Fargo College</i> Public Health	Detroit
†Ruth Born, <i>a</i> German	Napoleon, Ohio
Edna Belle Bostedor, Ph.B., <i>The University of Chicago</i> Eaton Rapids	
Jessie Emeryetta Phillips Bourquin, A.B.	Ann Arbor
Oets Kolk Bouwsma, A.B., A.M. Philosophy	Ann Arbor
†Dwight Carroll Bowen, A.B., <i>Michigan State Normal College</i> , <i>ved</i> Education	Detroit
Warren Espy Bower, A.B., <i>Hillsdale College</i> , A.M.	Quincy
Robert D. Brackett, A.B., <i>Northwestern University</i> English	Sheridan
Peter Edward Brender, B.C.E.	Ann Arbor
Alma Adele Bright, A.B., A.M.	Detroit
Loren Roy Brink, A.B. Education	Ann Arbor
Nina Edith Bristol, A.B. Education	Lansing
Julia Elizabeth Brittain, A.B., A.M. Latin	Saugatuck
Harold Hudson Britton, A.B., A.M. Romance Languages	Ann Arbor
Detlev Wulf Bronk, A.B., <i>Swarthmore College</i> , M.S. Physics	Ann Arbor
Marjorie Irene Bronson, A.B. Rhetoric	Lockport, N. Y.
Arold William Brown, A.B., <i>Michigan State Normal College</i> , A.M. Education	Ypsilanti
Dugald Edmund Smith Brown, A.B. Zoology	St. Thomas, Ont.

- George Granger Brown, B.S.(Ch.E.), *New York University*,  
M.S.E. Ann Arbor  
Chemical Engineering
- Earl Witten Brubaker, Ph.G., *Valparaiso University*, B.S.,  
*Antioch College* Van Wert, Ohio  
Public Health
- Perry Salem Brundage, B.Pd., *Michigan State Normal College*,  
B.S. Ypsilanti
- George Sydney Buchanan, A.B. Cheney, Wash.  
Geology
- Bruce Gates Buell, B.S.F. Ann Arbor  
Forestry
- Mahlon Henry Buell, A.B., *Hillsdale College*, M.S. Ann Arbor  
Physics
- Martha Buist, A.B. Grand Rapids  
English
- Hempstead Stratton Bull, E.E., *Lehigh University* Ann Arbor
- Laverne Burchfield, A.B., A.M. Maumee, Ohio  
Political Science
- Alexander Carothers Burr, A.B., *Jamestown College*, B.S.  
*ibid*, M.S. Rugby, N. Dak.  
Chemical Engineering
- Mary Margaretta Burr, A.B., *Jamestown College* Rugby, N. Dak.  
English
- Nita Lorine Butler, A.B., A.M. Paw Paw  
Latin
- Marshall Lyman Byrn, A.B., *Michigan State Normal College*  
Detroit
- Paul Devoe Cahow, A.B., A.M. Ann Arbor  
Economics
- Evah Gertrude Anderson Caldwell, A.B. Bay City  
Education
- Floyd Newton Calhoun, B.S., *Louisiana State University*  
New Iberia, La.  
Mechanical Engineering
- Eugenia Sue Katz Cameron, A.B. New York, N. Y.
- †Norman Cameron, A.B., *m* New York, N. Y.  
Psychology
- Catharine Maria Campbell, A.B. Leslie  
English
- Laura Angeline Cannon, A.B., A.M. Ann Arbor
- Winifred Stooddy Canright, A.B., *Ohio Wesleyan University*  
Royal Oak
- Ruby Bernice Carlton, A.B., *Olivet College* Dimondale
- Arthur Raymond Carr, A.B., *Michigan State Normal College*,  
B.S.E., M.S.E. Ann Arbor  
Chemical Engineering
- Lowell Juilliard Carr, A.B., A.M. Ann Arbor  
Sociology

Frank Salem Cartwright, D.D.S. Orthodontia	Detroit
Lulu Myrtle Casemore, A.B.	Detroit
Mildred Lucile Cash, A.B., <i>Alma College</i>	Alma
Harcourt Lenhart Caverly, A.B. Economics	Toledo
Katherine MacFarlane Chamberlain, A.B., A.M. Physics	Detroit
Howard Glazier Chamberlain, B.S.E. Chemical Engineering	Ann Arbor
Vell Burrows Chamberlain, B.S., <i>Colgate University</i>	Ypsilanti
†Min Shao Chang, A.B., <i>a</i> Geology	Junan, China
Everett Chapman, B.S.E. Physics	Detroit
Howard Rufus Chapman, A.B., <i>Shurtleff College</i>	Ann Arbor
Ssu Tu Chen, A.B.	Kwongtung, China
Jessie Marie Cherrington, A.B., <i>Ohio University</i>	McArthur, Ohio
English	
Ruth Carpenter Child, A.B., <i>Mount Holyoke College</i>	Putnam, Conn.
Rhetoric	
†Vance Allen Christian, B.S., <i>Virginia Union University, m</i>	Roxbury, Va.
Lyle Langlois Chrysler, A.B., <i>Albion College</i>	Detroit
Chung Yii Chu, B.S., <i>Soochow University</i>	Hankow, China
Ruel Vance Churchill, B.S., <i>The University of Chicago</i>	Ann Arbor
Physics	
Albert Henry Clark, A.B.	Detroit
Education	
Frances Naomi Clark, A.B., <i>Stanford University</i>	San Jose, Calif.
Zoology	
Homer Augustus Clark, B.S., <i>Rose Polytechnic Institute</i>	Detroit
Robert Watson Clark, A.B., A.M.	Okmulgee, Okla.
Geology	
Charles Wildman Clarke, B.S.(Chem), M.S.(Chem)	Chicago, Ill.
Chemistry	
Sarah Clarkson, A.B., M.S.	Ann Arbor
William James Clench, B.S., <i>Michigan Agricultural College,</i>	
M.S., <i>Harvard University</i>	Boston, Mass.
Zoology	
Elizabeth Cleveland, A.B., A.M.	Detroit
Education	
†Arthur Franklin Cloud, <i>e</i> Civil Engineering	Stillwater, Okla.
Susanna Ada Clough, A.B., A.M.	Detroit
Wendell Morris Coates, A.B., <i>Williams College,</i> M.S.	Ann Arbor
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Education	

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Ralph Frederick Cohn, B.S.E. Chemical Engineering	Ann Arbor
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Francis Louise Comey, A.B., <i>Newcomb College</i> Education	Saugatuck
Cecile Laura Conklin, B.S., <i>New York State College for Teachers</i> Zoology	Hillsdale, N. Y.
Josephine Horatia Corbin, A.B. Rhetoric	Detroit
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Edison Henry Cramer, A.B., A.M. Economics	Ann Arbor
Edwin Ernest Crampton, B.S., <i>Olivet College</i> Education	Tecumseh
Charles William Creaser, A.B., M.S. Zoology	Alma
Ford Elmore Curtis, A.B., <i>Oberlin College</i> English	Saginaw
Frank Chatfield Cutting, B.S.E. Chemical Engineering	Troy
Carl Enoch William Leonard Dahlstrom, A.B., A.M., Hiram Charles Daley, Ph.B.	Ann Arbor Highland Park
Education	
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German
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- Walter Arthur Donnelly, A.B. Battle Creek  
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 Abraham Herman, A.B., A.M.      Detroit  
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 Marina Louise Holmes, B.S., *Middlebury College, A.M.*      Ann Arbor  
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†Carl Parker Huber, <i>a, m</i> Anatomy	Ann Arbor
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Russell Claudius Hussey, A.B. Geology	Ann Arbor
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Mechanical Engineering	
Ray Keeslar Immel, A.B., A.M. Psychology	Ann Arbor
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Esther Agatha Kern, A.B. Romance Languages	Ann Arbor
Clarence Frank Kessler, R.S.E. Electrical Engineering	Ann Arbor
Russell Donald Kilborn, A.B., A.M. Economics	Hanover, N. H.
Minnie M. Kinnaird, B.S., <i>Alma College</i> History	Cass City
Augustus Kirchner, B.S., M.D. Dermatology and Syphilology	Detroit
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Mathematics	
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- William Hiram McCracken, D.D.S. Detroit  
Preventive Dentistry
- Adelia McCrea, A.B. Detroit  
Botany
- Verna Isabelle McCreery, A.B. Ann Arbor  
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	Akron, Ohio
Daniel Jacob Miller, A.B.	
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James Byron Mott, A.B.	Kalamazoo
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Elinor Mullett, A.B.	Ann Arbor
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Ralph Waldo Muncy, B.S.F.	Ann Arbor
Forestry	
†Charles Fredrick Murdock, <i>ed</i>	Detroit
William Alvin Myers, B.S.E.	Bay City
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Loraine Olive Myll, A.B.	Mount Clemens
Kenneth Orne Myrick, A.B., <i>Harvard University</i>	Ann Arbor
English	
Mary R. Nagelberg, A.B., <i>Hunter College</i>	New York, N. Y.
English	
Charles Allen Neafie, M.D., <i>University of Maryland</i>	Pontiac
Public Health	

- Veta Thorpe Nebel, A.B., *University of Illinois*, A.M. Fort Wayne  
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- Esther Nelson, A.B., *University of Utah*, B.L.S., *New York*  
*State Library School* Salt Lake City, Utah  
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- Laura Helen Nelson, A.B., A.M., *Columbia University*  
Chautauqua, N. Y.
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Zoology New Brunswick, N. J.
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Education Persia, Iowa
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Rhetoric	
Norma Dobie Solve, A.B., <i>University of Oregon</i>	Eugene, Ore.
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Malcolm Herman Soule, B.S.(Chem.), M.S.(Chem.)	Albion, N. Y.
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†Marshall Dean Spencer, A.B., <i>l</i>	Lawton
Rhetoric	
Frank Azor Spragg, B.S.A., <i>Montana State College of Agriculture and Mechanic Arts</i> , M.S., <i>Michigan Agricultural College</i>	East Lansing
Botany	
William John Stahl, A.B., <i>Midland College</i>	Fremont, Nebr.
Forestry	
Grant Lee Stahly, B.S., <i>University of Nebraska</i>	Milford, Nebr.
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Edward A. Stalker, B.S.E., M.S.E.	Cheboygan
Aeronautical Engineering	
Evelina Manuel Stark, A.B.	Ann Arbor
Russell Elliott Stewart, C.E., <i>University of Cincinnati</i>	Galion, Ohio
Highway Engineering and Highway Transport	
Nellie Stobie, A.B.	Ypsilanti
Romance Languages	
Charles Howard Stocking, Ph.C., B.S.(Phar.)	Ann Arbor
Pharmacy	
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Sociology	

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William Melville Strachan, A.B., LL.B., A.M. Political Science	Ann Arbor
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Victor Harrison Sugar, A.B., LL.B., <i>Detroit College of Law</i>	Detroit
Carolina Augusta Supe, A.B. Sociology	Ypsilanti
Benjamin George Sutton, B.S., <i>Adrian College</i> Education	Detroit
Wallace C. Swank, B.S., <i>Michigan Agricultural College</i> Chemistry	Dowagiac
Inez Selesky Swift, A.B., <i>Michigan State Normal College</i>	Ann Arbor
Donalee Levi Tabern, B.S.(Chem.), M.S.(Chem.) Chemistry	Detroit
Frances Agnes Tait, B.S., <i>Huron College</i> Education	Huron, S. Dak.
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†Kwan Yau Tang, B.S.E., <i>c</i> Electrical Engineering	Honolulu, P. I.
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Walter Abram Terpenning, A.B., <i>Kalamazoo College</i> Sociology	Kalamazoo
Isabel Thomes, A.B., <i>University of Kansas</i> Romance Languages	Kansas City, Mo.
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 Romance Languages
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# Summer Session, 1923

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Harvey A. Whitney, Ph.C.  
Kathleen M. Brier, R.N.

# STUDENTS\*

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Margaret Amelia Ableson	Detroit
Ralph Emerson Adamson, <i>a</i>	Goodland, Ind.
Margaret Adomeit, <i>ex</i>	Detroit
Charles Harold Ainsworth, <i>a</i>	Detroit
Grace Ethel Albrecht	Erie, Pa.
William John Alexander, Jr., <i>a</i>	Steubenville, Ohio
LeRoy Alford	East Tawas
Frank Phoenix Allen, <i>g</i>	New Windsor, Ill.
Susan Dyar Allen	Ann Arbor
Alf Sven Alving, A.M.	Iron Mountain
Hattie Belle Ambler, A.B., <i>Maryland University</i>	Jeanette, Pa.
Katy Rebecca Amonette, <i>a</i>	El Paso, Tex.
Angus Edward Anderson, <i>a</i>	Manistee
Inez Marie Anderson, <i>a</i>	Marion, S. C.
Ray Anderson, <i>a</i>	Vermontville
Peter Z. Arapakis	Detroit
Richard Thomas Archbold	Decatur, Ind.
Margaret Roberta Ardis	Evart
Harold Stanley Arner, <i>a</i>	Kingsville, Ont.
Doris Kathryn Arnold, <i>a</i>	Ann Arbor
Frederick William Arnold, Jr.	Mount Oliver, Pa.
Leo Ash	Three Rivers
Clifford Theodore Ashmead	Bloomfield, Iowa
Jerome Ashmore, <i>a</i>	Detroit
Margaret Elizabeth Asman, <i>a</i>	Ann Arbor
George Washington Athey	Enid, Okla.
Arch Adlai Aucker	Port Trevorton, Pa.
Harold Thomas Augustus, <i>a</i>	Ypsilanti
William George Austin, <i>a</i>	Ann Arbor
William Francis Austin, <i>a</i>	Detroit
Walter Clarence Averill, Jr.	Petersburg
Kathleen Lucy Bailey, <i>a</i>	Jackson
Frances Josephine Baird	Philadelphia, Pa.
Claude Baker, <i>a</i>	Ligonier, Ind.
Gertrude Yerkes Baker, <i>a</i>	Battle Creek
John Milledge Baker	Toledo, Ohio
Cora Ann Ballou, <i>ex</i>	Detroit
Milton Conroy Barber	Highland Park

\* Italic letters following a name show that the student is attending the University in the year 1922-23 and is enrolled in the College or School indicated: *a*, denoting College of Literature, Science, and the Arts; *e*, Colleges of Engineering and Architecture; *ed*, School of Education; *m*, Medical School; *l*, Law School; *p*, College of Pharmacy; *d*, College of Dental Surgery; *g*, Graduate School; *ex*, Extension Courses; *v. ed*, Vocational Education Courses.

Elizabeth Baety Barclay, <i>a</i>	Waco, Tex.
Lorraine Aedell Barnaby, <i>a</i>	Ann Arbor
Charles Clyde Barnes	Mount Pleasant
Irma Lowene Barnett, <i>a</i>	Homer, Ind.
Helen Victoria Barrett	Port Huron
John Alton Barrett, <i>a</i>	Newberry
Alfredia Gertrude Barth, <i>a</i>	Ann Arbor
Elizabeth Irene Bartholomew	Cleveland, Ohio
Leslie Dale Batdorff, <i>a</i>	Ann Arbor
Fred Charles Bates	Reed City
Helen May Batterson	Flint
Joseph Cornelius Baumgartner, <i>a</i>	Milford, Ind.
Pearle Orletta Baxter	Flint
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Edwin Thomas Beadle	Sturgis
Doris Maxine Beaman	Pittsboro, Ind.
Sarah Viola Beattie	Howell
David Culver Beatty	Williamston
Howard William Beatty	Ann Arbor
Lucille Eleanor Bebeau	Rockland
Lillian Augusta Beckman, <i>a</i>	East Toledo, Ohio
Raymond Louis Beecher, <i>a</i>	Wakeman, Ohio
Florence Livingston Behal	Philadelphia, Pa.
Esmeralda Wilhelmina Beierle	Detroit
DeWitt Bailey Bell, <i>a</i>	Clifton, N. J.
James Hector Bell	Sault Ste. Marie
Lester Charles Bendle	Swartz Creek
Doris Muriel Benedict, <i>a</i>	Highland Park
Ellen Gertrude Bennett	Lancaster, Pa.
Jerry Struble Benson, <i>a</i>	Conneaut, Ohio
William Everett Benson	Erie, Pa.
James Harrison Bernard, <i>a</i>	St. Louis
Walter George Bernthal, <i>a</i>	Frankenmuth
Robert Warren Berry	Ann Arbor
Frederic Boyd Besimer, <i>a</i>	Ann Arbor
Effie Carlotta Bettens	Hancock
Bangahre K. Bhagwan	Hydrabad, India
James O. Bibbins, <i>a</i>	Jackson
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Martha Alice Bird	Girard, Ohio
Eugene Rudin Bixby, <i>a</i>	Lakewood, Ohio
Grace Lela Blackford	Albany, Wis.
Ernest Deuel Blair	Winona, Minn.
Florence Elizabeth Blake	Rochester, N. Y.
Kenneth Davidson Blake	Bradford, Vt.
Rachel Bliton, <i>a</i>	Ann Arbor
Erma Marian Bloss, B.A., <i>Beloit College</i>	Ashland, Wis.
Joseph Chiam Blumenthal, <i>a, g</i>	Detroit

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Marion Isabel Bodwell	Methuen, Mass.
Arend Edward Boer	Spring Lake
William August Boerner	Mio
Julia Bohil	Ithaca
Dorothy Marie Boillotat	Grosse Pointe
Bessie Jean Boley	Calhoun, Ill.
Charles Boller	Buffalo, N. Y.
Margaret Helen Boller	Chicago, Ill.
Laura Belle Bolyard	Middleton
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Rex Porter Bond	Garwin, Iowa
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Frances Campbell Bonner, <i>a</i>	Ann Arbor
William Edwin Bonsey	Olmstead Falls, Ohio
Enos Byron Bookwalter, <i>a</i>	Columbiana, Ohio
Reba Bommershine	Dayton, Ohio
Lillian Wallace Booth	Ann Arbor
Nelly Bosma	Grand Rapids
Hazel Viola Bostrum	Rookford, Ill.
Laila Miller Bottum	St. Johns
Elma Elizabeth Boughton	Chicago, Ill.
Ora Elsie Boville, <i>ex</i>	Detroit
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Richard Todd Boyd	Traverse City
Mary Eleanore Boyer, A.B.	Lansing
William Kenyon Boyer	Marquette
Chauncey LaMar Brace, <i>a</i>	Pontiac
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Walter Ralph Brennan, <i>a</i>	Streator, Ill.
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Mary Catherine Brigham	Indianapolis, Ind.
John Clark Bright	Keyser, W. Va.
Lillian Rumsey Bronson	Ann Arbor
Marjorie Irene Bronson, <i>g</i>	Lockport, N. Y.
Delores Margaret Brooks, <i>a</i>	Pontiac
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Dugald E. S. Brown, <i>g</i>	St. Thomas, Ont.
Harold William Brown	Petoskey
Harry Morton Brown	Bath, N. Y.
Martha E. Brown, A.B., <i>Indiana University</i>	Daytona, Fla.
Robert Andrew Brown	Grand Rapids



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Robert Parmelee Brown, <i>a</i>	Flint
William Fitzallen Brown, <i>a</i>	Iron Mountain
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Dean Howard Brumm, <i>d</i>	Nashville
Donald Clair Buehrer, <i>a</i>	Ann Arbor
Martha Buist, <i>a</i>	Grand Rapids
George Newton Bullard	St. Johns
George Earl Bullen	Albion
Willetta Ethel Bunn, A.B.	Erie, Pa.
Helen Howard Burdett	Keene, N. H.
George Lincoln Burgan	Hubbell
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Russell Burns	North Branch
Martha May Burss, A.B.	Remus
Cecelia Jane Butler, <i>a</i>	Ann Arbor
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Ralph Newell Byers, <i>a</i>	New Castle, Pa.
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Mabelle E. Cake	Ann Arbor
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Jennie Irving Campbell	Ann Arbor
Margaret Campbell	Cincinnati, Ohio
Mary Elizabeth Campbell, A.B., A.M.	Ann Arbor
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Alice Adelaide Cargill	Detroit
Elizabeth Carland, <i>a</i>	Corunna
Rose May Carlen	Brooklyn, N. Y.
Julie Marguerite Carlisle	Topeka, Kans.
Paul Edward Carlisle	Springfield, Mass.
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Leewell Hunter Carpenter	Wabash, Ind.
Helen Hornberger Carr	Detroit
Mabel Miller Carter, <i>a</i>	Ann Arbor
Myra Carty, <i>a</i>	Albion
Hugh Thomas Cavanaugh, <i>a</i>	Grand Rapids
Mildred Jane Chamberlain	Clarkston
Harold Kempf Chandler	Groose Pointe Shores
John Perry Chandler	Two Harbors, Minn.
Beatrice Irene Chapin, <i>a</i>	Traverse City
John Forrest Chapman	Cedar Rapids, Iowa

Raymond Austin Chapman, <i>a</i>	South Rockwood
Charles Bacheller Chase	Massena, N. Y.
Clark Ledyard Chase	Massena, N. Y.
Nai-Ching Cheng, <i>g</i>	Shanghai, China
Frank John Chenicek, <i>a</i>	Chardon, Ohio
Ralph Bernard Chenot, <i>m</i>	Highland Park
Royal Frank Cherry, <i>a</i>	Grand Rapids
ChenK Shue Cheung, <i>a</i>	Canton, China
Chin Liang Chiao	Shansi, China
Lyla Josephine Chisholm, <i>a</i>	Bay City
Bernice Peters Church	Charlotte
Edwin Lorenzo Clark	Chelsea
Frances Marie Louise Clark, <i>a</i>	Detroit
Ivan Stowe Clark, <i>a</i>	Kalamazoo
James Smith Clark, <i>a</i>	Detroit
Laurence MacFarlane Clark, <i>ed</i>	Clinton
John James Clarkson	Ann Arbor
Lily Agnes Clayton	Madisonville, Ky.
Nettie Lutz Clayton	Madisonville, Ky.
Douglas Walter Clephane, <i>a</i>	Chevy Chase, Md.
Esther Lou Cline, <i>a</i>	Ypsilanti
William Ward Clore, <i>a</i>	Winnetka, Ill.
Flora Colby Clough	Wichita, Kans.
Jennie Merinda Clow, <i>ed</i>	Detroit
Lanus Wheat Cloyd	Leslie, Ky.
James Mitchell Coates	Little Rock, Ark.
Kenneth Bentley Cobb	Detroit
Myron Alman Cobb	Mount Pleasant
Herbert Marshall Cobe	Ann Arbor
Warren Coe, <i>a, g</i>	Chelsea
Benjamin Cohen	Detroit
Frederick Lee Colby, Jr., <i>a</i>	Detroit
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Kathryn Anne Louise Cole, <i>a</i>	Ann Arbor
Marion Francis Collison, <i>a</i>	Champaign, Ill.
Mary Futrell Colvin	Vicksburg, Miss.
Donald Coney	Ann Arbor
Harold Edward Conklin, <i>a</i>	Ann Arbor
Margaret Myers Conklin, <i>a</i>	Ann Arbor
Lois Adella Conner	Chicago, Ill.
George VanAmber Conover, <i>a</i>	Flint
Stuart Fulton Conrod	Winnipeg, Manitoba
Frances Mary Cordesman	Chicago, Ill.
Lenore Dunstan Corson, <i>a</i>	Ann Arbor
Lora Belle Corson, <i>a</i>	Ann Arbor
Annabelle Yoto San Cosgrove	Detroit
James Lyman Cossitt, <i>a</i>	La Grange, Ill.
Dwight Hawthorne Coursey, <i>a</i>	Ann Arbor
Foster Arthur Covert, <i>a</i>	Ann Arbor

Esther Eloise Cowley, <i>ex</i>	Detroit
Ruth Mildred Cox	Wyandotte
Lotta May Crabtree	Muskegon
William Tilden Crandell	Cadillac
Walter Lewis Craver, <i>a</i>	Youngstown, Ohio
Cecil Osborn Creal, <i>a</i>	Jamestown, N. Y.
Charlotta Ann Crofts	Toledo, Ohio
Charlotte Aileen Cromwell, <i>a</i>	Parkman, Ohio
Maxine Jane Cromwell, <i>a</i>	Chardon, Ohio
John Redmond Cronan	Port Huron
Alice Althera Crosby	Syracuse, N. Y.
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John William Croushore, <i>a</i>	Fayette City, Pa.
Anne Velora Culler	Johnstown, Pa.
Charles Bissell Cummings, <i>a</i>	Ann Arbor
Cora Annette Cummings	Wayne
Mariana Marie Cummings, B.E.A., <i>University of Nebraska</i>	
	Lincoln, Neb.
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Algot John Dahlberg	Escanaba
Hazel Marion Daley	Detroit
Francis Leo Daly	Sandusky, Ohio
William Lewis Daoust	Alpena
Margaret Daskam	Antigo, Wis.
Kenneth Mercereau Davenport, <i>m</i>	Rochester, N. Y.
John Laroc Davis	Toledo, Ohio
Louise Christine Davis	Albion
Marie Grace Davis, <i>ex</i>	Flint
Nathan Morris Davis	Indianapolis, Ind.
Harry Luther Day	Providence, R. I.
Doris Lucille Dean	Detroit
Louise Dekraker, A.B.	Grand Rapids
Dorothy Emma Delaforce	Ypsilanti
Richard DeLoof, <i>d</i>	Holland
Coral Edison Demaray, <i>ed</i>	Spring Arbor
Wilmer Foster Dempsey	Edwardsburg
Wilfrid T. Dempster	Detroit
Agnes Josephine Denihan	Chicago, Ill.
Henry Bernard Desenberg, <i>a</i>	Mexia, Tex.
Laura E. Detwiler	Seville, Ohio
Richard Sydney Dewey, <i>a</i>	Monroe
M. Reginald Dexter	Grand Rapids
Adolph John Diehl, <i>a</i>	Ann Arbor
Marie Angela Diggins	Manistee
Arthur Frederick Dittmer	Ludington
Howard Arthur Donahue	Lansing
Eugene Vincent Donlan	Clinton, Iowa
Sam Burton Doughton	Sparta, N. C.

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 Marcus Brownson Duffield, *a*  
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 Glee Duncan  
 Hilda Louise Duncan, *ex*  
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 Gladys Edith Dunn, *a*  
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 James William Dunstone  
 Elmer Nathaniel Durfee  
 Winston John Durant, *a*  
 Arturo Luis Echevarria  
 Frank Merriman Edwards, *a*  
 Lydia Martin Edwards  
 Paul Leopold Einstein, *a*  
 Blanche Irene Elithorpe  
 Paul Cooper Ellis  
 Wade Bishop Ellis, *a*  
 Charles Bartlett Emery, *a*  
 Florence Alton Emery, *a*  
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 Nanking, China  
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 Whiting, Ind.  
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 Farwell  
 Farwell  
 Erie, Pa.  
 Hastings, N. Y.  
 Louisville, Ky.  
 St. Johns  
 Dollar Bay  
 Ann Arbor  
 Rolla, Mo.  
 Aguadilla, P. R.  
 Utica, N. Y.  
 Washington  
 Cleveland, Ohio  
 Philadelphia, Pa.  
 Wayne, Nebr.  
 Bradford, Pa.  
 Bedford, Ind.  
 Portland  
 Wooster, Ohio  
 Traverse City  
 Chicago, Ill.  
 Ann Arbor  
 Pittsburgh, Pa.  
 Ionia  
 Ann Arbor  
 Newaygo  
 Detroit  
 Mount Clemens  
 Oklahoma City, Okla.  
 Sand Lake  
 Adams Center, N. Y.  
 Grover Hill, Ohio  
 Toledo, Ohio  
 Grand Rapids  
 St. Louis, Mo.  
 Ann Arbor  
 Smithfield, Ohio  
 Ann Arbor  
 Cambridge, Ohio  
 Palmyra, N. Y.  
 Cleveland, Ohio  
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Burton Dake Floyd, <i>a</i>	Cleveland, Ohio
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Prentice Cooper Ford, <i>a</i>	Brooklyn, N. Y.
Newton Melville Forsythe, <i>a</i>	Joplin, Mo.
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Harold Michael Fox	Lansing
Francis Bruce Fralick	Greenville
Hazel May French	Hillsdale
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Rosalie Louise Frenger, <i>a</i>	Las Cruces, N. Mex.
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Bert Eugene Fry, <i>l</i>	Ann Arbor
Ying Fu, <i>g</i>	Peking, China
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Myron Marc Golden	Detroit
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Miriam Deborah Goldman, A.B., A.M.	Detroit
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 Harry Shiloh Gould  
 George Leland Graber  
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 Joseph Derby Grant  
 Arthur Owens Graves  
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 Horace Winslow Gray  
 Clarence Elijah Green  
 Ruby Green  
 Virginia Ruth Gregg  
 Alexander Leo Gregory  
 Edward Payson Gregory  
 Helen Gregory  
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 Charles William Grube  
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 William DePuy Hall, g  
 Henry George Hammer  
 Theron DeMont Hammond  
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 Julius Adolph Hanslovsky  
 Julius George Hanson  
 Alice Catherine Hardenburgh  
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 Elmer Hal Harrington  
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 Houston, Tex.  
 Howell  
 Howell  
 Howell  
 Pella, Iowa  
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 Jackson  
 Detroit  
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 Howard  
 Slippery Rock, Pa.  
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 Rochester, Minn.  
 Brooklyn  
 Spokane, Wash.  
 Scio, N. Y.  
 Scio, N. Y.  
 Grand Rapids  
 Cleveland, Ohio  
 Blissfield  
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Ruth Annetta Harvey	Detroit
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Iva Mary Healy	Fort Dodge, Iowa
Ella Gertrude Heartt	Ann Arbor
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Ralph Carl Heidloff	Toledo, Ohio
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Saul Hertz	Cleveland, Ohio
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Geraldine Heyt	Grand Rapids
John William Heyt	Grand Rapids
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Percy Barre Hill	Reading
Louis Richard Hiller	Dayton, Ohio
Margaret Elizabeth Hiller	Detroit
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Drayton Frazer Holcombe	Redford
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James Frederic Hopkins, <i>a</i>	Ypsilanti
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Robert Sherman Hotchkiss, <i>a</i>	Jamestown, N. Y.
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Herbert Williams Hoyt, <i>a</i>	Sharon, Pa.
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Gwyn McCall Hughes, <i>a</i>	Yarmouth, Me.
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Allison Wilber Ind	Ann Arbor
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Maud Huntington Ingalls, A.B., <i>Mt. Holyoke College</i>	Castleton-on-Hudson, N. Y.
Edith Louise Ingersoll	Castleton-on-Hudson, N. Y.
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Mary Adelaide Irwin, <i>a</i>	Pittsburgh, Pa.
Melvin Price Isaminger, <i>m</i>	Pittsburgh, Pa.
John Reno Ives, <i>a</i>	Alpena
Richard Adolphus Jackson, <i>a</i>	Ann Arbor
Dorothy Jacobs	St. Louis, Mo.
Harold William Jacox, <i>a</i>	Detroit
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William Rees James, <i>a</i>	Highland Park
Mary Elizabeth Jameson, <i>a</i>	Cleveland, Ohio
Anton John Jankoviak, <i>a</i>	Cadillac
Julio Cesar Jauregui, <i>a</i>	Bessemer
Maude Louise Jayne, <i>ed</i>	La Paz, South America
Limille Lee Jeffrey	Six Lakes
Ruth Formean Jennings, <i>a</i>	Jeffrey, W. Va.
Mabel Barker Jensen, B.S., <i>University of Chicago</i>	Lansing
Ellice Jessop, <i>ed</i>	Grand Rapids
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Corinne Cecelia Johnson, <i>a</i>	Albion
Katharine Barbara Johnson	Ann Arbor
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William Frederick Johnson, Jr.	Ann Arbor
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Robert Carroll Jones, <i>a</i>	Adrian
Gerald Thomas Joyce, <i>a</i>	Troy, Pa.
Adolph Ralph Julian	Detroit
James Kacena	Leadville, Colo.
	Detroit



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Dorothy Elizabeth Kalmbach, <i>a</i>	South Lyon
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John Nathaniel Kantner	Ionia
Manmatha Nath Kar	Calcutta, India
Irene June Kauska, <i>a</i>	Detroit
Mark Alexander Kearney, <i>a</i>	Detroit
Gertrude Helen Keener	Chicago
Kathleen Marie Kelleher	Ann Arbor
Leonard Anthony Keller, <i>a</i>	Detroit
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Nelle Gertrude Kenney	Muskegon
John Lewis Kenower, <i>a</i>	Huntington, Ind.
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Elizabeth Kerwin	West Chester, Pa.
Sara Eleanor Kerwin	West Chester, Pa.
Mana Frances Kilpatrick	Ann Arbor
Caroline Johanna Kimmerle	Stroudsburg, Pa.
Harold Nelson King, A.B., <i>Ohio Wesleyan College</i>	Warren, Ohio
Guy Waldo Kirsch, <i>a</i>	Sturgis
Frances Mary Kirtland, <i>a</i>	Jackson
Kermit Kern Klein, <i>a</i>	Ann Arbor
Maude Charlotte Kleyn	Ann Arbor
Homer Holcomb Knight, <i>a</i>	Charlotte
Dora Koberg	St. Paul, Minn.
Genevieve Myrtle Koehm	Ann Arbor
Ida Alberta Koepel	Lake Linden
Harry Kok, <i>a</i>	Grand Rapids
Benjamin Bernhard Koploy	Detroit
Lulu Mae Kramer	Aurora, Colo.
Hazel Juliette Krapf, <i>a</i>	Ann Arbor
Gracie Brainerd Krum	Detroit
Henry Augustus Kuhlman	Detroit
Frank Jacob Kuiper, <i>d</i>	Grand Rapids
Arthur Kuizema	Grand Rapids
Edward Kupka	Detroit
Charles Theodore Kurtz, Jr., <i>a</i>	Clearfield, Pa.
Kimber Cleaver Kuster, <i>a</i>	Ann Arbor
Ming Tsing Kwong	Canton, China
Bessie Francis Ladd, <i>ex</i>	Detroit
H. Brack Ladner	Big Rapids
Mary Felicie Lally, <i>a</i>	Ann Arbor
Mary Lamb	Detroit
Frank Bernard Lambert, Jr., <i>a</i>	Chicago, Ill.
Mildred Irene Lamkin	Tecumseh
Elmore Calvin Lampe	Louisville, Ky.
James Cummins Lane, <i>a</i>	Toledo, Ohio
Katherine Mae Lane, <i>a</i>	Ann Arbor
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 Robert Lawson, *a*  
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 Ann Arbor  
 Jackson  
 Ann Arbor  
 Ann Arbor  
 Mount Clemens  
 Revere, Mass.  
 Youngstown, Ohio  
 Portland, Ore.  
 Windsor, Ont.  
 Detroit  
 Cleveland, Ohio  
 Butte, Mont.  
 Coldwater  
 Detroit  
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 Bostic, N. Y.  
 Fort Benton, Mont.  
 Benton Harbor  
 Kalamazoo  
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 Tecumseh  
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 Bay City  
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 Whitmore Lake  
 Marlette  
 Buffalo, N. Y.  
 Buffalo, N. Y.  
 Flint  
 Ann Arbor  
 Ann Arbor  
 Jackson  
 Kokomo, Ind.  
 Kokomo, Ind.  
 South Lyon  
 Detroit  
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Edna Noble McGowan	Pontiac
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Robert Kenyon MacGregor, <i>a</i>	Ann Arbor
Norma McIndoo	Ann Arbor
Margaret Georganna MacInnis, A.B.	Portland, Ore.
Henrietta Mary McIntyre, <i>a</i>	Saginaw
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Virginia Margaret MacLaren, <i>a</i>	Ann Arbor
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Walter Russell McLean, <i>a</i>	Ann Arbor
William Rudolph Macklind, Jr.	Chicago, Ill.
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Isabella McRae, Ph.B.	Hamtramck
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Harold Mills Manderbach, <i>a</i>	Ann Arbor
Walter Evans Manion	Detroit
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Amy Deborah Martin, <i>a</i>	Detroit
Anna Emma Martin	Bay City
Edna Thelma Martin, <i>a</i>	Charlotte
Esther Helen Martin, <i>a</i>	Miami, Ariz.
James Walter Martin, <i>a</i>	Charleston, W. Va.
Nellie Ermentrude Martin	Charlotte
Robert Delts Martin, <i>a</i>	Ovid
William Bertram Matheson, <i>a</i>	Grand Rapids
Raymond Wells Mathews, <i>a</i>	Gary, Ind.
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John Scrafford Mauk	Toledo, Ohio
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Helen Louise Mayer	Ann Arbor
Mae Ethlyn Mayer	Ypsilanti
William Neale Mayo, <i>a</i>	Detroit
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Alice Lynd; Meader, <i>a</i>	Ann Arbor
George Edgar Meads, <i>d</i>	Tecumseh
Robert William Mcferd, <i>a</i>	Lima, Ohio
Robert Meginnity	Detroit
Laurence Clifford Meriwether, <i>a</i>	Royal Oak
Charles Jerome Merrill, <i>a</i>	Ann Arbor
John Randolph Mersereau, <i>a</i>	La Grange, Ill.
Nellie Tealco Mershon	Grabill, Ind.

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Roland Arthur Mildner	Detroit
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Marian Clara Miller	Ann Arbor
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Rose Hedwig Millonig	Dayton, Ohio
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Grace Bertha Moehlman	Detroit
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Ruth Erline Monroe	Pittsford
Mary Helen Montgomery	Shelbyville, Ind.
Cyril Claire Moore	Grand Rapids
Verena Moran, <i>a</i>	Grand Rapids
Edna Marion Morency, <i>a</i>	Sturgis
John Joseph Moirarty	Ann Arbor
Robert Charles Morrey	Jackson
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Hobart Crummer Morton, <i>a</i>	Ann Arbor
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Mae Ethlyn Moyer, <i>ex</i>	Lansing
Ruth Marion Mueller, <i>ed</i>	Benton Harbor
Edgar Harrison Elisha Mumford	Troy
Vernon Bercutt Myers, <i>a</i>	Detroit
Nathan Nagle, <i>a</i>	Gowanda, N. Y.
Hachibei Nakamura, <i>a</i>	Morioka, Japan
Alfred Theodore Navarre, <i>a</i>	Monroe
Ethyl M. Neelands, <i>a</i>	Ann Arbor
Hayden Elmo Neely, <i>a</i>	Gladwin
Leona Mary Neely	Bradford, Pa.
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Edward William Nelson, <i>a</i>	Escanaba
Florence Louise Nelson, <i>a</i>	Owosso
William Edward Nesbitt, <i>m</i>	Alpena
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Frank Saxton Newcome	Toledo, Ohio
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Hinman Gilbert Nichols, <i>a</i>	Farmington
Vivian Juanita Nichols	Detroit

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Windsor Curtis Nistle, <i>a</i>	Grand Rapids
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Walter Maurice Noack, <i>a</i>	Detroit
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Vera Eulalia Northrup	Fort Wayne, Ind.
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Hazel May Olmstead, <i>ed</i>	Nashville
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Royal Oppenheim, <i>l</i>	Detroit
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Mary Gonzaga O'Rourke	Ann Arbor
Gertrude Bertha Ottmer, <i>a</i>	Ann Arbor
Lucretia Evelyn Ouderkirk	Ann Arbor
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Ronald Richard Owens, <i>a</i>	Angola, Ind.
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Hardy Pagels, <i>a</i>	Ann Arbor
Ruth Mary Paine, <i>a</i>	Detroit
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Floyd Raymond Palmer	Grand Rapids
Lowell Mead Palmer, <i>a</i>	Grand Rapids
Norris Beach Palmer, <i>d</i>	Ann Arbor
Robert Sherman Palmer, <i>a</i>	Ann Arbor
Lester Orville Palmiter, <i>a</i>	Lansing
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Steward Henry Pardee, <i>a</i>	Clinton
Douglas Fraser Park, <i>g</i>	Chatham, Ont.
Frederick Culver Parker, <i>a</i>	Lockport, N. Y.
Helen Loretta Parker	Detroit
Leander Connerly Parker, <i>a</i>	St. Louis, Mo.
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Elsie Mary Parmer	Nashville, Tenn.
William Edward Parnall, <i>a</i>	Ann Arbor
John Mills Parreant	Manistee
Marie Paryski, <i>a</i>	Toledo, Ohio

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Martin Patmos	Hudsonville
Maurice Elmo Paton	Almont
Joseph Burton Pattinson, <i>a</i>	Manistique
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James Franklin Pepper, <i>a</i>	Pulteney, N. Y.
Florence Nora Perkins	Sparta
Lilian Alleyne Perkins, <i>a, g</i>	Ann Arbor
George Franklin Perrin	Escanaba
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 Sadaichi Dodo, *e*  
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 Pontiac  
 Ann Arbor  
 Poland, Ohio  
 Stillwater, Okla.  
 Ann Arbor  
 Akron, Ohio  
 Ann Arbor  
 Detroit  
 Ypsilanti  
 Port Huron  
 Traverse City  
 Kalamazoo  
 Detroit  
 Oakley  
 Ann Arbor  
 Nictheroy, South America  
 Olean, N. Y.  
 Crete, Nebr.  
 Detroit  
 Greenville  
 St. Joseph  
 Wolverine  
 Louisville, Ky.  
 Calumet  
 Ann Arbor  
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 Detroit  
 Orion  
 Shelbyville  
 Youngstown, Ohio  
 Grand Rapids  
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 Cass City  
 Harbor Springs  
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 Cleveland, Ohio  
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Mildred Elizabeth Fellows, <i>c</i>	Jackson
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 Ypsilanti  
 Bay City  
 Muizenberg, South Africa  
 Lima, Ohio  
 North Henderson, Ill.  
 North Henderson, Ill.  
 Changsha, China  
 Ann Arbor  
 Big Rapids  
 Shanghai, China  
 Hangchow, China  
 Changsha, China  
 Battle Creek  
 Quincy, Ill.  
 Durand  
 Oil City, Pa.  
 Battle Creek  
 Avoca, N. Y.  
 South Boardman  
 Crisco, Iowa  
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 Tientsin, China  
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 Wilkes-Barre, Pa.  
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 La Crosse, Wis.  
 Kalamazoo  
 Van Wert, Ohio  
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 Allegan  
 Grand Rapids  
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Thaddeus Julius Paryski, <i>e</i>	Toledo, Ohio
Henry Herman Passolt, <i>e</i>	Bridgeport, Conn.
Raymond Percival Paynter, <i>e</i>	Flint
Fletcher William Pearce, <i>e</i>	Lake Linden
Santiago Victor Perez, <i>e</i>	Havana, Cuba
Edward Henry Peters, <i>e</i>	Ann Arbor
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Herbert Rankin Poland, <i>e</i>	Payne, Ohio
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Robert Wilmot Preston, <i>e</i>	Ann Arbor
Charles Ernest Proctor	Detroit
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George Edward Quigley	Detroit
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Edgardo Rambelli, <i>e</i>	Buenos Aires, South America
Wray Walker Rawlings, <i>e</i>	Rochester, N. Y.
Paul James Rawson, <i>e</i>	Coldwater
Robert Lloyd Reid, <i>e</i>	Avoca
William Justin Reilly, <i>e</i>	Youngstown, Ohio
Arthur Clarence Rich, <i>e</i>	Battle Creek
Glenn Charles Richards, <i>e</i>	Detroit
Kenneth Weatherby Richards, <i>e</i>	Ann Arbor
Ramon G. Rivera, <i>e</i>	Ponce, P. R.
George Mortimer Roberts, <i>e</i>	Grand Rapids
Burtis Lowell Robertson, <i>e</i>	Ypsilanti
Campbell Robertson, <i>e</i>	Kalamazoo
Karl Benjamin Robertson, <i>e</i>	Grand Rapids
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	Lewisburg, Pa.
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Francis Cameron Shiel, <i>e</i>	Hillsdale
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Rollin John Shouldice	Battle Creek
Ruf Shu, <i>e</i>	Soochow, China
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Bernard Gumpert Silberstein, <i>e</i>	Duluth, Minn.
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Ray Wolcott Smith, <i>e</i>	Elmore, Ohio
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George H. Valderrama, <i>e</i>	Bogota, South America
Lytle Stuart Van Antwerp, <i>e</i>	Grand Rapids
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Arie Vander Meulen, <i>e</i>	Pretoria, South Africa
Christian Gerard Vander Veen, <i>e</i>	Grand Rapids
Bertram Orlando Vannort, <i>e</i>	Federal Park, Md.
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 Lockport, N. Y.  
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 Windsor, Ont.  
 Saginaw  
 New London, Conn.  
 Ann Arbor  
 Pasadena, Calif.  
 Ann Arbor  
 Youngstown, Ohio  
 Springfield, Mass.  
 St. Louis, Mo.  
 St. Thomas, Ont.  
 Detroit  
 Lima, Ohio  
 Castle Rock, Colo.  
 London, Ont.  
 Toledo, Ohio  
 Shanghai, China  
 Chungking, China  
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Vanamber Baker, <i>Student in Detroit College of Medicine</i>	Detroit
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Arthur W. Boda, <i>Student in Ohio State University</i>	Mt. Victory, Ohio
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Anderson Talbert Bowers, <i>a, m</i>	Dayton, Ohio
James Michael Bowers, A.B., <i>m</i>	Dayton, Ohio
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Homer Vernon Bradshaw, B.S., <i>Mt. Union College</i>	Flemingsburg, Ky.
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Edward Maurice Brikman, <i>a, m</i>	Cleveland, Ohio
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George Marion Brown, <i>m</i>	Chicago, Ill.
Ralph Myron Brown, <i>d</i>	Mt. Pleasant
Stowell Nelson Brown, <i>Student in Ohio State University</i>	Tiffin, Ohio
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Phillipus Mare Coetzee, <i>d</i>	Belfast South Africa
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Leo Francis Wohlwend,	Akron, Ohio
Fu Kun Wu, LL.B., <i>g</i>	Hongkong, China
Edward Hilton Yost, A.B., <i>l</i>	St. Louis
Frank Landon Young, Jr., A.B., <i>l</i>	Lansing

## COLLEGE OF PHARMACY

Arvid Peter Bayne, <i>p</i>	Mulberry, Ind
John Harry Dzwonchyk	Mayfield, Pa.
Vera Catherine Eagen, Ph.G., <i>Detroit College</i>	Detroit
Harvey Harold Elsoffer, Ph.C.	Cleveland, Ohio
Ernest Linwood Harris, Jr., <i>p</i>	St. Louis, Mo.
Amos Ludwig Kroupa	Cedar

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Fred Turner Livingston	Greenville
Paul Leroy Livingston, <i>p</i>	Grand Rapids
Kenneth James MacKenzie, <i>p</i>	Escanaba
Margaret Jennie Muir	Almont
Louis C. Nehamkin	Cleveland, Ohio
Justin Lawrence Powers, <i>p</i> , Ph.C	Pullman, Wash.
Julio Ramirez, <i>p</i>	Mayaguez, P. R.
Walter H. Scott	Detroit
Ben Bernard Shugan, <i>p</i>	Chicago, Ill.
Walter Dennis Strother, <i>p</i>	West Milford, W. Va.
Russell Lowell Taylor, Ph.C.	Elyria, Ohio
Roscoe Merle Twining	Midland

## SCHOOL OF EDUCATION

Verona Louise Abney, <i>ed</i>	Kansas City, Mo.
Sylvances Eugene Adair	Rockland
Ray Horatio Adams	Dearborn
Arthur Christian Ammentorp, A.B.	Detroit
Wendell Thomas Applebee	Wellsville, N. Y.
Ellis William Armantrout	Caledonia
Harry Elmer Aseltine, B.C.S., <i>Albion College</i>	Mason
Forrest Glenn Averill, <i>ed</i>	Ravenna
Eula V. Avery, <i>ed</i>	Ann Arbor
Grace Benjamin Axtell	Chelsea
Frank Marion Ayres, <i>g</i>	Ann Arbor
Burt M. Baird	Wayne
James Baird, LL.B. <i>Detroit College of Law</i>	Detroit
Orley Edmund Balyeat	Sparta
Barbara Marian Barker	Bellevue
Maurine Foote Bauer, <i>ed</i>	Ann Arbor
Prudence Emly Beasley, <i>ed, ex</i>	Detroit
Harold Joachim Becker	Detroit
Vivian Mildred Begeman	Burlington, Iowa
Pearl Lester Bell, A.B., <i>Michigan State Normal College</i>	Ypsilanti
Lina Wilhelmina Benzin	Ann Arbor
Elizabeth Mary Bero	Detroit
George Ervin Bersette	Harrison
Augusta Bieske	Cadillac
Matilda Foley Bishop, <i>ed</i>	Luzerne
Hazel Olive Black, <i>ed</i>	Caro
Robert Orville Black, B.S., <i>Georgetown College</i>	Ironwood
Esther Bliton	Ann Arbor
Kathryn Browne Beggs	Cassaway, W. Va.
Ethel Bowman, <i>ex</i>	Flint
Ida May Bowman	Quinter, Kans.
Thelma Evangeline Boyd, <i>ed</i>	Detroit
Edmund Haug Bremer	Detroit
Catherine Marie Bretz	Detroit
Nellie Holbrook Brewbaker	Royal Oak

Grace C. Brown	Port Huron
Ula Mary Buckley	Jeannette, Pa.
Mildred Gene Burlinson	Ionina
William Thomas Carter	South Lyon
Lydia Lucretia Case, <i>ed</i> , A.B., <i>Michigan State Normal College</i>	Ypsilanti
Ellen Cassidy	River Rouge
Vernon Emory Chase	Lakeview
Mabel Tribbey Clark	Lakeview
Helen Rose Coburn	Scottsville
Bessie Irene Cole	Evart
Nellie Emma Cole	Evart
Joseph Cecil Collins, A.B., <i>Earlham College</i>	Knightstown, Ind.
Cleo Margery Comins	Freesoil
John Mansel Conat	Lambertville
Lucille Conrad	Hartford
George Roscoe Correll	Flint
Rhea Elizabeth Coverdale	Levering
Alice Thomas Cross	Petoskey
Clara Marguerite Cross	Spring Arbor
Ezra Laurence Cross	Petoskey
Elizabeth Mary Curran	Hartford, Conn.
Mary King Davenport, <i>ed</i>	Ann Arbor
Florence Day	Pontiac
Irene Frances Diehl	Forreston, Ill.
Anne Mae Doll	Detroit
William Jennings Donnelly, <i>ed</i>	Detroit
Cecile Gail Dooley	Kalamazoo
Hazel Ardele Dooley	Kalamazoo
Ethel Jeannette Dow	Bad Axe
Clara Elizabeth Dowling, <i>ed</i>	Detroit
Effie Muriel Downer, <i>l</i>	Detroit
Joseph Philan Doyle	Pinckney
Ruth Ophelia Dunbar, <i>ed</i>	Grand Rapids
Jessie Agnes Dunsmore	Gladstone
Marie Olive Eagan	Wyandotte
Marguerite Helena Eness, A.B.	Grand Rapids
Wallace Alber: Ferguson	Freeland
Earl A. Ferns	Attica
Lewis Loratus Forsythe, A.B.	Ann Arbor
John Eugene Fraley	Forreston, Ill.
Harold Alexander Freeman	Rose City
Loula Blanche Freeman, A.B., <i>Union College</i>	Algona, Iowa
Benjamin Shipp Frost, <i>v</i> , <i>ed</i> , B.C.S., <i>Albion College</i>	Detroit
Russell Alger Gaffney, A.B., <i>Albion College</i>	Alma
Harriet Flavia Gagnon	Monroe
Roy K. Gilmore	Hart
Josephine Mildred Giroux, <i>ed</i>	Grand Rapids
Edna Grace Goodrich	Ann Arbor

Hunter Crary Goodrich, <i>ed</i>	Detroit:
Ula Wilhelmina Grace	Detroit
Alton Clarence Granger, <i>ed</i>	Tekonsha
Elsie Elizabeth Graves	Jackson
Hazel Laura Green, <i>ed</i>	Detroit
Eathel Elizabeth Greene	Charleston, W. Va.
Walter Frederic Gries	Lanrum
George Frank Gruenbauer	Grand Rapids
Hazel Mary Hall	Ann Arbor
Charles Frederick Hamilton, <i>ed</i>	Charlevoix
Alvin Howard Hanson, <i>ed</i>	Milwaukee, Wis.
Myrtie Mae Harriman, <i>ed ex</i>	Detroit
Ethel Deressa Hedrick, <i>ed</i>	Ypsilanti
Harriet D. Helmer, <i>ed</i>	Parma
Loranie Fred Hire, <i>ex</i>	Wyandotte
Agnes Margaret Hough	Flint
Foster Irving Huber, <i>ed</i>	Marcellus
Alice Teresia Ingmanson, <i>ed</i>	Cadillac
Ferris Columbus Jackson, <i>ed</i>	Ann Arbor
Ann Jacobson	Detroit
Horace J. Kaake	Mt. Pleasant
Nellie May Kahoe, <i>ed</i>	Ann Arbor
Donald Stewart Kelley, <i>ed</i>	Hastings
Helen Claire Kelley	Calumet
Elizabeth Enid Loomis Kerr	Onsted
Etta May Kinch	Grindstone City
Ellen Hart King, A.B.	Pueblo, Colo.
Rosa Kingsbury	Mt. Clemens
Thelma Myrtle Knight	Hanover
John Korolishin	Detroit
Marie Katherine Krieg	Burlington, Iowa
Melvin Dallas Lakey	Eldora, Iowa
Clair VanNorman Langton, <i>g</i>	Ypsilanti
Erin Lee	Livingstone, Ala.
John Joseph Lee	Alba
Donald Gordon Leith, B.S.	Brighton
Deyo Scott Leland, B.S., <i>Michigan State Normal College</i>	Ypsilanti
Marguerite Amanda Linhart	Toledo, Ohio
Clinton Claude Lippert, <i>ed</i>	St. Lou's
Mae Hill Luke, <i>ex</i>	Grand Rapids
Abigail Lurie, A.B.	Ann Arbor
Louise Gladys Lyon	Mayville
Mary Eileen McClear	Whitmore Lake
Muriel Alicia McClear	Whitmore Lake
Lucile Bernadine McClenathan	Fremont, Ohio
Benjamin Franklin McCuen, <i>ex</i>	River Rouge
Leo Patrick McDonald	Gwinn
Donald Stinson McGuire	Detroit
Lynn C. McKee	Indiana, Pa.

Archibald Ross MacLaren, B.S.E.	Port Huron
May Bruckheiser McLean, A.B., <i>Cornell University</i>	Atlanta, Ga.
Dorothy Craven Mapes	Grand Rapids
Thurston Emanuel Markle	Baraga
Bess Elmira Martindale, <i>v</i> , <i>ed</i>	Harbor Springs
Mary Eva Martin	Summitt City
George Everett Matson	Jackson
Helen Victoria Matson	Hancock
Arthur Jacob Matteson, A.B.	Bessemer
Lorna Doone Metcalf, <i>ex</i>	Leslie
Helen Lois Millar, <i>a</i>	Manistique
Ethel Agnes Millett	Armada
Frank Crigler Moore	Cleveland, Ohio
Mary Kyran Moran	Muskegon
Eunice Morrison	Albion
Fred Ernest Gotthilf Nicolai	Milwaukee, Wis.
Ileta Metha Nicolai, <i>ed</i>	Ann Arbor
Orle James North	Traverse City
Ethel Arletta Norton	Manistique
Thomas Salisbury Nurnberger, <i>ed</i>	Manchester
Mary Evangeline O'Brien	Muskegon
Olive J. Odell, <i>ex</i>	Clinton
James Eugene O'Neill	Hancock
Gladys Owen	Detroit
Griffith Evan Owen	Grand Rapids
Laurens Alfred Packard	South Haven
Claudia Lucille Parker, <i>ed</i>	Hopkins
Eva Mae Parker	Charleston, W. Va.
John S. Perrin, A.B.	Escanaba
Harriet Petry	Birmingham
Emory Dixon Pierce	Sault Ste. Marie
Marry Lorraine Randall	Hastings
Maurice Leonard Reed	Lansing
Clinton Allen Rice	Ann Arbor
Irma Morison Rice	Ann Arbor
Esther Brodie Ricketts	Pana, Ill.
Della John Riddering, <i>ed</i>	Grand Rapids
Glady's Ryder	Hartford
Wilmont Reid Sanford, <i>ed</i>	Ann Arbor
Myrtle Carlotta Schafer	Stephenson
Bertha Cornelia Schaffer, <i>ex</i>	Ann Arbor
Frank Ellsworth Schall	Caro
Glen George Schropp, B.S., <i>Denison University</i>	Sandusky, Ohio
Doris E. Schumacher	Chelsea
George Elliott Shawley, A.B., <i>Michigan State Normal College</i>	Mason
Katharine Sheehan, <i>ex</i>	Grand Rapids
Bernice Muir Shumar	Almont
Floyd David Shumway	Ypsilanti

Thomas Charles Simpson, B.S., M.S.	Port Huron
Ivy Slayton, <i>ex</i>	Grand Rapids
George O. Smiley, A.B.	Coldwater
Mary Roberta Snell	Detroit
Otto Carl Spanenberg, A.B., <i>Albion College</i>	Rockford
Catherine Elizabeth Sparling	Bad Axe
Marion Clara Spaulding, A.B.	Ionia
Leata Dorothy Sperling	Oak Harbor, Ohio
Floyd Adlai Stilgenbauer, <i>a</i>	Ann Arbor
Carolyn Violet Stover, <i>ed</i>	Fort Wayne, Ind.
Gertrude Summy	Paw Paw
Benjamin Greene Sutton, <i>g</i>	Maybee
Merle Eliza Taylor, <i>ed</i>	Sparta
Ross Patratz Tenny, <i>ed</i>	Big Rapids
Ralph Earl Thompson	Flint
Agnes Anne Tighe	Detroit
Petronilla Tighe	Detroit
Margaret Elsie Toles	Douglas, Ariz.
Lucille Jane Troy	Grand Rapids
Lucy Southworth Turner	West Branch
Wilfred Charles Tyler	Picayune, Miss.
Edson Blaine Valentine, LL.B.	Benton Harbor
Richard D. Vick, <i>ed</i>	Toledo, Ohio
Artia Sherlock Vickers	Ann Arbor
E. Forrest Walcott, <i>g</i>	Marne
Clara Lucile Walper	Benton Harbor
Grace Winifred Walz	Detroit
James Garfield Warren	Hillsdale
Mary Theresa Watters	Detroit
Jacob David Weisberg, <i>ed</i>	Bayonne, N. J.
Edith Ione Westfall	Edwardsburg
Jane Greenawalt White	Greensburg, Pa.
Blanche Elenore Whitney	Alanson
Clarence Jason Whitney	Port Sanilac
Alice Puella Wilfing	Belding
Clarence LeRoy Williams, A.B., <i>Alma College</i>	Brown City
Myrtle Quincilla Wineman	Youngwood, Pa.
Sara Catherine Wineman	Youngwood, Pa.
Nora L. Wood	Romulus
Ethel Aveline Wooden	Pontiac
Edith Widell Woods	Newton
Leon Lewis Yeakey	Bay City
Gladys I. Young, <i>ed</i>	Big Rapids
Manley Elijah Young, <i>ed</i> , B.S., <i>Michigan Agricultural College</i>	Saginaw

## Vocational Education

Chester William Adsitt	Saginaw
Harvey Wilbur Bradley	Saginaw

Maudie Ethel Charlton	Hastings
Ernest William Cutting	Albion
Edward Henry Eva	Vulcan
George Henry Fern	Saginaw
Earl R. Gaskill, <i>v. ed</i>	Royal Oak
Casius M. Gould, <i>v. ed</i>	Saginaw
Raymond John Graff	Vulcan
Bert M. Hartgerink	Manistee
Erma Beatrice Hodgson, <i>ed</i>	Bay City
Elmer Albert King, <i>v. ed</i>	Detroit
Essey Armanilla Klumph, <i>ed</i>	Dearborn
Bertha Florence La Fraugh	Birmingham
Evelyn Marie Lapham, <i>a</i>	Detroit
Charles Anthony Lefevre	Pontiac
Floyd LeRoy Lewis	Muskegon
Iliah Marie McQuade, <i>a</i>	Detroit
Rheo Eugene Misner	Muskegon
George Alexander Morrison	Marquette
Raymond Withers Morrow	Saginaw
Valiera Louise Oll, <i>a</i>	Detroit
Everett Carleton Russell	Pontiac
Anna Regina Sturm	Bay City
George E. Tabraham	Kalamazoo
Adeline C. Zulsdorf	Bay City

### Athletic Coaching and Administration

Cedric Rush Adams, A.B.	Ligonier, Ind.
James Arthur Anderson, Jr., A.B., <i>Hendrix College</i>	Ashland, Ky.
Henry Alexander Barrett	Lake Linden
Ruben William Betchtel, A.B., <i>Wittenberg College</i>	Berea, Ohio
Joe Beyers	Imlay City
James Howze Bryan, A.B., <i>Washington &amp; Lee University</i>	Birmingham, Ala.
Lester Ray Bucher	Coshocton, Ohio
Arthur Alfred Burridge	Ottawa, Ont.
Eugene Michael Callahan	Concord, N. H.
Robert Duncan Campbell, A.B., <i>McMaster University</i>	Ottawa, Ont.
James Wilbur Chapman	Detroit
Frank Virgil Churchill	Lebanon, Ohio
Harry Richard Cole, A.B., <i>Albion College</i>	Albion
Louis Dominic Corbat, Jr.	Richmond
Robert John Cortright, A.B., <i>Hillsdale College</i>	Hillsdale
Paul Francis Couthie	Muskegon
Crawford Davies	Ashland, Ky.
John Webb de Yampert	Birmingham, Ala.
Alton Calvin Douds	Chautauqua, N. Y.
Lowell C. Drake, A.B., <i>Allegheny College</i>	Ashtabula, Ohio
Frederick Wiggins East, <i>ed</i>	Ann Arbor
Carrie Marie Fate	Abingdon, Ill.



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Ross C. Faught, B.S.E., <i>TriState College</i>	Perry, Ohio
Charles Frank Foster	Arlington, Mass.
Hayward Ward Foy, B.S., <i>Davis-Elkins College</i>	Harding W. Va.
William Carl Frailie	Ashland, Ky.
Noel Vincent Fullen, A.B., <i>Michigan Agricultural College</i>	Charlotte
J. Henry Geurkink	Grand Rapids
Herbert Buckler Gill	Boston, Mass.
Omar Thomas Goddin, A.B., <i>Davis &amp; Elkins College</i>	Elkins, W. Va.
Earl John Goheen, LL.B., <i>Valparaiso University</i>	White Bear Minn.
Thomas Hall, Ph.B., <i>Brown University</i>	Providence, R. I.
Homer Hanham	Tecumseh
Wilbur Willard Harper, A.B., <i>Albion College</i>	Albion
Kline Benjamin Hartman	Hesperia
Frank Louis Hayes, A.B., <i>Marietta College</i>	Greenfield, Ohio
John George Heppinstall	East Lansing
Theodore R. Hersh	Continental, Ohio
Harold Theodore Higgins	Traverse City
George Waldemar Hokanson	Manchester, N. H.
James William Hole	Ann Arbor
Reginald Owen Humphrey	Watertown, Wis.
Glen Andrew Hunt	East Lansing
James Francis Hyde	Windber, Pa.
Paul Henry Jarrier, A.B., <i>Emory &amp; Henry College</i>	Newport, Va.
Jerome Tyrrell Jerome, A.B., <i>Hillsdale College</i>	Hillsdale
John Raymond Jordan, A.B., <i>Baylor University</i>	Eagle Pass, Tex.
Harry Justus	Bluffton, Ind.
Raymond Louisc Kaulitz	Owosso
Ratus Lee Kelly, A.B., <i>Carson-Newman College</i>	Clinton, Tenn.
Harold Gamble Kern	Ashland, Ky.
Donald Duncan Lawler, B.S., <i>Michigan State Normal College</i>	Jackson
Gosnell Layman, A.B., <i>Georgetown College</i>	Sandusky, Ohio
Fred Roy Lewis	Muskegon Height:
Alvin Earl Loucks, A.B.	Grand Rapids
Franklin B. McComb	Portsmouth, Ohio
Leland Louis McLain, A.B., <i>Hillsdale College</i>	Quincy
Edward James McRay	Detroit
William Russell Malan, A.B., <i>Park College</i>	Pinckneyville, Ill.
Harry Edwin Marquis, A.B., <i>Muskingum College</i>	Alliance, Ohio
Peter Aloysius Marz	Canton, Ohio
Daniel Henry G. Matthaei, A.B., <i>University of Chicago</i>	Toledo, Ohio
Harris Irving Mayes, A.B., <i>James Milliken University</i>	Dalton City, Ill.
Carl Hugo Meissner	Toledo, Ohio
Frank William Milburn	Fort Benning, Ga.
Alton Kenneth Miller	South Lyon
Bernard Scott Miller	Ada, Okla.

Raymond Spencer Mote	Piqua, Ohio
Garland Joe Nevett	Bay City
Frank Swift Noble	Fort Madison, Iowa
Frank Prater Phipps	Ashland, Ky.
Edward James Powers	Grand Rapids
Hagle Quarnstrom, A.B.	Gladstone
Burrows Rathsburg	Imlay City
Charles Edward Reardon, B.S., <i>University of New Hampshire</i>	Concord, N. H.
James Ward Rees	Mayslick, Ky.
Albert Russell Renwick	Calumet
Fred Walter Rydholm	Marquette
Fred Lawrence Sanborn	Brainerd, Minn.
Christoph Ludwig Schneider, Jr.	Ann Arbor
Edwin Warner Shadford	Adrian
Will Henry Sheldon	Utica
Hal LaVerne Shields, A.B., <i>Albion College</i>	Albion
William Slater	Holland
Harold Roe Smith	Charlotte
Roy L. Smith	Denver, Colo.
Robert Fairchild Southern, A.B., <i>Carson-Newman College</i>	Rogersville, Tenn.
Jacob L. Stoneback	Quakertown, Pa.
John Maynard Street, A.B., <i>Carleton College</i>	Kalamazoo
Benjamin Arthur Terrill	Clayton, Mex.
Horace Lamar Tolbert, A.B., <i>University of Florida</i>	Fort White, Fla.
William John Trautwein, B.S., <i>Wittenburg College</i>	Springfield, Ohio
Lyle Ellis Van Denventer	Hamtramck
Turin Vanzo	Stambaugh
Fred Brown Wallace	Oxford, Ohio
Fred Renshaw Wallace, B.S., <i>Washington College</i>	Church Hill, Md.
Sherwood R. Walper	Benton Harbor
Thomas Henry Whitehead	Albion
Olin Henry Wilson	Sedan, Kans.
Milton La Verne Young, A.B., <i>Albion College</i>	Albion
Carl James Zimmerman, B.S., <i>Mouw Union College</i>	Akron, Ohio

## GRADUATE SCHOOL

Lloyd Ackerman, A.B., in Ed., <i>Colorado Teachers College</i>	A.B.,
<i>University of Colorado, g</i>	Ann Arbor
Zoology	
Alma Bernice Ackley, A.B.	Stockbridge
Botany	
Florence Grace Adcock, A.B., <i>Knox College</i>	Galesburg, Ill.
Zoology	
Edith Bailie Aiton, A.B.	Santa Anna, Calif.
Rhetoric	
Mary Eliza Allaman, A.B., <i>University of Akron</i>	Akron, Ohio
Latin	

Edna Mitchell Allen, A.B. English	Alma
Gladys May Allen, A.B., <i>Olivet College</i>	Olivet
Howard Buttolph Allen, A.B., <i>Albion College</i> Education	Wyandotte
Margaret Minerva Allen, B.S., <i>Denison University</i> , g Zoology	Evanston, Ill.
Charles Meeks Anderson, A.B., <i>Johnson Bible College</i> , A.M., <i>ibid</i> , A.M. Economics	Ann Arbor
Helen Lucille Anderson, A.B. Rhetoric	Grand Rapids
Carleton Homer Andrews, A.B., <i>Hillsdale College</i> Education	Quincy
Robert Cooley Angell, A.B., A.M., g Sociology	Ann Arbor
Margaret Irma Anschutz, A.B., A.M. Latin	Bay City
Emberson Robert Ardis, A.B., <i>Alma College</i> Education	Evart
Eva Ruth Ardis, A.B., <i>Alma College</i> English	Evart
Kikusaburo Asai, Graduate, <i>Osaka College of Technology</i> , g Osaka, Japan	Reading
Muriel Babcock, A.B., <i>Hillsdale College</i> , A.M. Lucelia Myrle Badgley, A.B.	Grand Rapids
History Myrtle Alice Bahm, A.B.	Poniac
Harold William Baker, A.B., <i>Oberlin College</i> Psychology	Cleveland, Ohio
Leland Dewitt Baldwin, A.B., <i>Greenville College</i> History	Cleveland, Ohio
Mary Baloyan, A.B. Rhetoric	Grand Rapids
Dora Magdalene Barnes, A.B., <i>Mount Holyoke College</i> , A.M., <i>George Peabody College for Teachers</i> Sociology	Nashville, Tenn.
Forrest Edward Barr, A.B., <i>Albion College</i> Education	Jackson
Josephine Bartcn, A.B.	Big Rapids
Grover Cleveland Bartoo, A.B., g Education	Kalamazoo
David Moses Bavly, B.M.E. Physics	Ann Arbor
Crate Beck, A.B., <i>Tri-State College</i> Physics	Fort Wayne, Ind.
Gertrude Rauh Beierlein, A.B.	Fort Wayne, Ind.

Hugh Montgomery Bell, A.B.	Indiana, Pa.
Education	
Walter Gerald Bergman, A.B., <i>Greenville College</i> , g	Greenville, Ill.
Psychology	
Peter Gerrit Berkhout, A.B., <i>Calvin College</i>	Grand Rapids
Frank Lee Bertschler, B.S., <i>Agricultural and Mechanical College</i>	
of Texas	Beaumont, Tex.
Nora Lucinda Bethel, A.B., g	Staunton, Ill.
Addie Elizabeth Bettes, Ph.B., <i>University of Chicago</i>	
Education	Grand Rapids
Iva Rae Bevens, A.B.	Detroit
Education	
Harry Guy Bevington, A.B.	Pontiac
Economics	
Clara Cecile Bice, A.B., <i>Huntington College</i>	Rockford, Ohio
History	
Adolph Edmund Bigge, A.B., g	Copemish
German	
Carlisle George Bigger, A.B., <i>Albion College</i>	Crossett
English	
Francis Russell Blakeslee, A.B.	Ypsilanti
Clarence Harlow Blanchard, A.B., <i>Albion College</i> , A.M., g	Detroit
Education	
Clarence Wesley Blanchard, B.S., <i>Central College</i> , A.B., <i>Adrian College</i>	Detroit
Education	
Paul Nestel Blessing, A.B., <i>Swarthmore College</i> , g	Ann Arbor
Frederick William Borgward, B.S., <i>Syracuse University</i> , Pd.B.,	
ibid	Syracuse, N. Y.
Don Hollis Bottum, A.B., <i>Central Michigan Normal School</i>	Saint Johns
Education	
Warren Edward Bow, B.S., <i>University of Illinois</i>	Detroit
Education	
Dona Cecilia Boyle, A.B.	Milford
English	
Robert D. Brackett, A.B., <i>Northwestern University</i> , g	Sheridan
English	
Evangeline Luella Bradley, A.B.	Farmington
Cleve Russel Bradshaw, A.B., <i>Michigan State Normal College</i>	
Education	Saginaw
Arthur Alanson Brainerd, B.S., <i>Ohio University</i>	Durham, N. H.
Electrical Engineering	
Marie Lydia Braun, A.B.	Detroit
George Lee Brewbaker, A.B. in Ed	Royal Oak
Education	

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Howard Linnell Briggs, B.S. in Ed., <i>Carnegie Institute of Technology</i>	Cleveland, Ohio
Education	
John Daniel Bright, A.B., <i>Manchester College</i>	Brookville, Ohio
Loren Roy Brink, A.B., <i>g</i>	Albion
Education	
Nina Edith Bristol, A.B., <i>g</i>	Lansing
Education	
Julia Elizabeth Brittain, A.B., A.M., <i>g</i>	Saugatuck
Latin	
John William Brooker, B.S., <i>Georgetown College</i>	Augusta, Ky.
Education	
Eva Brooks, A.B., <i>Colorado College</i>	Highland Park
Clarence Mert Brown, B.S.(Phar.), <i>Ohio State University</i>	Columbus, Ohio
	Chicago, Ill.
John Jones Brown, A.P., A.M.	Chicago, Ill.
Wesley Laverne Brown, A.B., <i>Albion College</i> , A.M.	Ganges
Earl Witten Brubaker, Ph.G., <i>Valparaiso University</i> , B.S., <i>g</i>	Van Wert, Ohio
<i>Antioch College</i> , <i>g</i>	
Public Health	
Mahlon Henry Buell, A.B., <i>Hillsdale College</i> , M.S., <i>g</i>	Ann Arbor
Physics	
Charles Theodore Bumer, B.S., <i>Denison University</i> , A.M., <i>g</i>	Girard, Ohio
<i>Harvard University</i>	
Carlton Earl Burnside, A.B., <i>Hillsdale College</i>	Bronson
Botany	
Leland Madinson Burroughs, A.B., <i>Wabash College</i>	Stevens Point, Wis.
Public Speaking	
Nita Lorine Butler, A.B., A.M., <i>g</i>	Paw Paw
Latin	
George Ernest Butterfield, A.B.	Bay City
History	
Floyd Newton Calhoun, B.S., <i>Louisiana State University</i> , <i>g</i>	New Iberia, La.
Mechanical Engineering	
Hugh Stone Calkins, A.B., B.D., <i>Transylvania College</i>	Maysville, Ky.
Psychology	
Norman Cameron, A.B., <i>g</i>	New York, N. Y.
Psychology	
Laura Angeline Cannon, A.B., <i>g</i>	Ann Arbor
Botany	
Glen Everett Carlson, A.B.	Saybrook, Pa.
Economics	
Rena Mabel Carlson, A.B., <i>Greenville College</i>	Saybrook, Pa.
English	
Ruby Bernice Carlton, A.B., <i>Olivet College</i> , <i>g</i>	Dimondale

- Kathrine Forest Carlyon, A.B., *Northwestern University*  
Denver, Colo.  
English
- Jesse Bryant Carpenter, A.B., A.M.  
Louisville, Ky.  
Education
- George Ernest Carscallen, A.B., *Wabash College*, A.M., *University*  
of Illinois  
Crawfordsville, Ind.
- Melville Kennedy Carson, A.B., *Geneva College*  
Sparta, Ill.
- Mary Conger Case, A.B. in Ed  
Ypsilanti
- Katherine MacFarlane Chamberlain, A.B., A.M., g  
De roit  
Physics
- Jen-Tsun Chao, A.B.  
Hangchow, China
- Ernest Henry Chapelle, A.B.  
Rockford  
Education
- Alberta Elizabeth Chase, A.B.  
Elsie
- Hannibal Gardner Chase, B.S., *University of Vermont*  
Mount Pleasant
- Edith Mabel Cherrington, A.B., *Ohio University*  
Belpre, Ohio  
English
- Yuoh Fong Chi, B.S., *Shanghai University*, M.S., *The*  
*University of Chicago*  
Ningpo, China
- Vance Allen Christian, g  
Roxbury, Va.
- Helen Frances Clark, A.B.  
Grand Haven  
English
- Homer Augustus Clark, B.S., *Rose Polytechnic Institute*, g  
Detroit
- Arthur Bernis Clayton, B.S., *Georgetown College*  
Madisonville, Ky.  
History
- Jesse Lee Clayton, B.S., *Georgetown College*  
Madisonville, Ky.
- Doris Alicia Cline, A.B.  
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Geology and Geography
- Sadie Margaret Clossen, A.B.  
Detroit  
Spanish
- Mary Belle Cochran, A.B., *Greenville College*  
Greenville, Ill.  
English
- Wilford Lorn Coffey, A.B., *Michigan State Normal College*  
Lansing  
Education
- Helen Thomas Coffin, A.B., *University of Texas*  
Itasca, Tex.
- Nellie Grant Congdon, A.B.  
Saline  
Latin
- Viola Merwin Konkright, A.B.  
Dowagiac  
Education
- Lawrence Henry Conrad, A.B.  
Ann Arbor  
Rhetoric
- Elise Cooper, A.B.  
Ann Arbor  
French
- Josephine Horatia Corbin, A.B., g  
Detroit  
Rhetoric

- Joseph Z. Corey, B.S., in Ed., *Detroit Teachers College*  
Hamtramck
- Athel Dale Cotterman, A.B., *Capital University*, A.M., *Ohio*  
*State University* Thornville, Ohio
- Greek
- Edward Albert Cournyer, A.B.  
Grand Haven
- Education
- James Emery Cox, A.B., *Oakland City College*, A.M., *Indiana*  
*University* Springfield, Mo.
- Cecil Calvert Craig, A.B., *Indiana University*, A.M., *ibid*, *g*  
Ann Arbor
- Mathematics
- Jessie Lane Craig, A.B.  
Ann Arbor
- Romance Languages
- J. Verne Crandall, B.S., M.S.  
Detroit
- Charles Wray Crandell, A.B., *Central Michigan Normal School*  
Cadillac
- Education
- Elma Beatty Cranfill, A.B., *Georgetown College* Franklin, Ky.
- Samuel Elliott Cranfill, A.B., *Georgetown College* Franklin, Ky.
- Economics
- Charles William Creaser, A.B., M.S., *g*  
Alma
- Zoology
- Vernon Crawford Cripe, B.S.(Ag.), *Purdue University*  
South Bend, Ind.
- Education
- Alexander Charles Crockett, A.B.  
Detroit
- Education
- Crisogono Ropelos Custodio, A.B.  
Iloilo, P. I.
- Political Science
- Ernest Edward Dale, A.B., *University of Nebraska*, M.S., *Kansas*  
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- Botany
- John Alexander Dalrymple, A.B., *Knox College* Fenton
- Education
- Harold Mathew Davidson, A.B., *University of Belfast*, A.M.  
Marshall
- English
- Hester Margaret Cunningham Davidson, A.B., *Olivet College*  
A.M., *ibid* Marshall
- Hazel Clare Davison, A.B., *University of Oklahoma*  
Michigan Valley, Kans.
- Thelma Ernestine Dawson, A.B., *West Virginia Wesleyan College*  
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- Public Speaking
- Fred John Decker, Graduate, *Concordia College*, *g*  
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- Education
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Thomas Jefferson Denney, A.B., <i>Ohio Wesleyan University</i> Education	Saginaw
Isaac Mart DeVoe, A.B. Mathematics	Highland Park
Matthys H. DeVroome, A.B., <i>Calvin College</i> Education	Grand Rapids
Ira Thorne-Clement Dissinger, A.B., <i>University of California</i> English	Sunbury, Pa.
Mary Bede Donelan, A.B., <i>College of Saint Teresa</i> Greek	Winona, Minn.
Walter Arthur Donnelly, A.B., <i>g</i> English	Battle Creek
Albert Daniel Do ter, A.B. Education	White Haven, Pa.
Ellen Livingston Doty, A.B., <i>Alma College</i> English	Breckenridge
Richard Eugene Downing, B.S., <i>Massachusetts Institute of Technology</i>	Bangor, Me.
Lee Philip Doyle, B.S., <i>Purdue University</i> Pathology	Lafayette, Ind.
Ernest Benjamin Drake, B.Ch.E. Chemistry	Detroit
Olive May Draper, A.B., <i>Taylor University</i> Mathematics	Sutherland, Iowa
Edward James Dubois, Ph.B., <i>Oskaloosa College, A.B., Valparaiso University</i> Economics	Tomahawk, Wis.
Stephen Maynard Dudley, A.B. Education	Pontiac
Lela Adelaide Duff, A.B., <i>g</i> Rhetoric	St. Louis
Orville Edward Duncel, B.S., <i>Michigan Agricultural College</i> Education	Sand Creek
Oscar Lee Dustheimer, B.S., <i>Ohio University, A.M., Clark University</i> Astronomy	Berea, Ohio
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Ella Amelia Edwards, A.B., <i>Washington Missionary College</i> Romance Languages	Berrien Springs
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Ohmer Harold Engle, A.B., *Wittenberg College* New Carlisle, Ohio  
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- Mathematics
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Edmund Foster Evans, A.B., *Greenville College* Pontiac  
Education
- Mirzanell Evans, A.B., *Olivet College* Olivet  
Public Speaking
- Henry Lee Ewbank, A.B., *Ohio Wesleyan University* Albion  
English
- Sara Catherine Ewing, A.B. Freeport, Ill.  
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- Almond Crockett Fairfield, A.B. Oklahoma City, Okla.  
Education
- Mary Frances Farnsworth, A.B. Detroit  
English
- Alfred Cochrane Farrell, A.B. Howell  
Economics
- Lucius Wade Fast, A.B. Mount Clemens  
Education
- Edward Bradford Featherstone, B.S.E. Toledo, Ohio  
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Erie, Pa.
- Education
- Adelaide Louise Fiedler, A.B., *Michigan State Normal College* Holt  
Mathematics
- Edna Lenore Fitton, A.B., *Emmanuel Missionary College*, A.M.  
Ann Arbor
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Paris, Ill.
- Harris Francis Fletcher, A.B., g Chelsea  
English
- Theodore Willis Flintoff, A.B. Jennings  
Education
- Lena Mabel Foote, A.B. Charlotte  
Latin
- Judson William Foust, A.B., *Albion College* Lansing  
Herbert Rolfe Fox, A.B. Ann Arbor  
History
- Mabel Welma Fox, A.B. in Ed. Grand Rapids

Murrey Challis Fox, A.B., <i>Albion College, g</i> Education	Royal Oak
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Bessie Bunah Fuhrman, A.B., <i>Michigan State Normal College</i> English	Decatur
Margaret Fullerton, A.B. English	Ann Arbor
Truman Fontanelle Galt, A.B., <i>Coe College, B.S., Chicago</i> <i>Theological Seminary</i> Education	Onaway
Carlos Garcia-Prada, Ph.B., <i>University of Bogota, g</i>	Colombia
Dwight Norton Garrison, A.B., <i>Ogden College</i> Chemistry	Bowling Green, Ky.
Jesse Janes Garrison, A.B., <i>g</i> English	Hartford
Aleath M. Garrity, A.B., <i>Saint Mary's College</i> English	Morrice
Earle Frederic Gasar, A.B., <i>g</i> Education	Muskegon
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Robert Edwin Gayle, B.S., <i>University of Illinois</i>	Lincoln, Ill.
Virginia Lee Gibbon, A.B., <i>Muskingum College</i> Public Speaking	Zanesville, Ohio
Deborah McDonald Gibson, A.B.	Ann Arbor
Gwendolen Gilliland, A.B., <i>Tabor College</i> Latin	Jackson
Roy K. Gilmore	Hart
Bessie Gordon, A.B. Latin	Fort Madison, Iowa
Jeannette Munford Gordon, A.B., <i>The Western College for</i> <i>Women</i> History	Oklahoma City, Okla.
William Hunter Gordon, A.B., <i>Michigan State Normal College</i> Education	Kalamazoo
Benjamin Bear Gould, A.B. Physics	Saint Louis, Mo.
Clifford Chester Gracey, A.B. Education	Detroit
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Joanna Albecca Graham, A.B. English	Detroit

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French	
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Public Speaking	
John Stanley Gray, A.B., <i>Muskingum College, g</i>	Saint Peter, Minn.
Public Speaking	
Mary Cornelia Gray, B.F.A., <i>University of Oklahoma</i>	Edmond, Okla.
William Lewis Gray, A.B., <i>Hillsdale College</i>	Adrian
Education	
Herrick Ernest Herbert Greenleaf, B.S., <i>Boston University</i>	Greencastle, Ind.
John Odus Grimes, B.S. in Ed., <i>Ohio University</i>	Ypsilanti
Education	
Edna Amanda Groff, A.B., <i>g</i>	Grand Rapids
German	
Walter Wesley Gumser, A.B., <i>Hope College</i>	Clare
Education	
Elisha Stephens Gurdjian, A.B., <i>International College, Smyrna, g</i>	Ann Arbor
Anatomy	
Asha Latika Haldar, A.B., <i>Calcutta University, A.M., ibid, A.M., g</i>	Kurseong, India
Philosophy	
Arthur Frank Hall, A.B.	Manistique
Education	
John Ruskin Hall, A.B., <i>Otterbein College, A.M., West Virginia University</i>	Weston, W. Va.
Elmer Lionel Hammond, Ph.C., B.S.	Chelsea
Pharmacy	
Jean Sherwood Harper, A.B., <i>Vassar College, M.S., Cornell University</i>	Ithaca, N. Y.
Don Harrington, A.B.	Albion
Education	
Mildred Pearl Harris, A.B., <i>g</i>	Atlanta, Ga.
Zoology	
Harry Arthur Hart, A.B.	Grand Rapids
Romance Languages	
William Canniff Harton, A.B., <i>Albion College</i>	Albion
Education	
Frank Devillow Haskins, B.Ch.E., M.S.	Macon, Ga.
Chemistry	
Harriett Vera Haven, A.B.	Grass Lake
Beatrice Helen Havinghurst, A.B.	Toledo, Ohio
Carolyn Eliza Hayes, A.B., <i>g</i>	Elsie
Romance Languages	

- Cordelia May Hayes, A.B. Grand Rapids  
French
- Floyd Mark Hazel, B.S., *Michigan Agricultural College* Battle Creek  
Education
- William Fairley Head, B.S., *Ohio Wesleyan University* Albion  
Education
- Carl Olof Nathaniel Hedeem, Ph.B., *The University of Chicago* Traverse City
- Clarence Raymond Heemstra, A.B., *Hope College* Grand Haven  
Education
- Arnold Paul Heflin, A.B., *Emmanuel Missionary College, g* Holly  
Education
- Junetta Christine Heinonen, A.B. Negaunee  
Botany
- Dora Patterson Hendy, B.S., *Lindenwood College* Jefferson City, Mo.  
Education
- Mary Isabel Henkel, B.S., *Purdue University*, M.S. Milwaukee, Wis.
- Mary Louise Dickie Herbst, A.B. Ann Arbor
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Education
- Elva Helen Hickox, A.B. Midland  
French
- Howard Harlan Hicks, A.B., *Hillsdale College, A.M.* Long Beach, Calif.
- William Jennings Bryan Hicks, A.B., *Alma College* Royal Oak  
Education
- Della L. Hinds, A.B., *Albion College* Harbor Beach  
English
- Anne Marie Hinshaw, A.B., *g* Ann Arbor
- Ada Elizabeth Hobbs, A.B. Deckerville  
English
- Clarence Albert Hoffman, A.B., *Manchester College* White Pigeon  
Education
- Emma Mabel Holbrook, B.Pd., *Michigan State Normal College,* Lansing  
A.B.
- English
- Benjamin John Holcomb, B.S., *Michigan Agricultural College* Plymouth  
Education
- Marina Louise Holmes, B.S., *Middlebury College, g* Bristol, Conn.  
Zoology
- Flora Emma Hook, Ph.B., *Syracuse University* East Orange, N. J.
- Jennie Estelle Hooper, A.B. Ann Arbor  
Education
- Arthur Ariel Hopkins, Ph.B., *Brown University* Monmouth, Ill.
- Genevieve Bell Hopkins, A.B. Ann Arbor

Harris Hazen Hopkins, B.S., <i>Kalamazoo College</i> , M.S., <i>ibid</i>	Kalamazoo
William Calvin Hoppes, B.S. in Ed., <i>University of Oregon</i> , <i>g</i>	Ypsilanti
Education	
Seward Leigh Horner, A.B., A.M., <i>g</i>	Ypsilanti
Economics	
Aris Van Deusen Horwath, A.B., <i>g</i>	Swartz Creek
Melvin Rudolph Houseman, B.S.	Grand Rapids
Chemistry	
John Milton Hover, A.B., <i>Michigan State Normal College</i> , B.S., <i>The University of Chicago</i> , <i>g</i>	Ypsilanti
Botany	
Mary Fuller Howes, A.B.	Detroit
Latin	
Evelyn B. Hubbard, B.Pd., <i>Michigan State Normal College</i> , B.S., <i>Columbia University</i> , <i>g</i>	Detroit
Education	
Rollin Clarence Hunter, A.B.	Delaware, Ohio
Public Speaking	
Julia Hurley, A.B., <i>Vassar College</i>	Utica, N. Y.
English	
Ruth Evelyn Huston, A.B. <i>g</i>	Plymouth
Public Speaking	
Teiji Imamura, Graduate, <i>Middle School, School of Military</i> <i>Arts</i> , <i>g</i>	Tokyo, Japan
Edmund Ellsworth Ingalls, Ph.B., <i>Yale University</i> , M.F., <i>ibid</i>	Mount Vernon, Iowa
Manley Elwood Irwin, A.B., <i>Michigan State Normal College</i> , <i>g</i>	Ypsilanti
Education	
Ermy Hahn Jackson, A.B., <i>Muskingum College</i> , <i>g</i>	Cambridge, Ohio
Public Speaking	
Lyman Ernest Jackson, A.B., <i>Muskingum College</i> , <i>g</i>	Cambridge, Ohio
Public Speaking	
Emma Grace Jacobs, A.B., <i>g</i>	Detroit
English	
Thelma Gray James, A.B.	Detroit
Rhetoric	
Raymond Robert Jared, A.B., <i>Indiana State Normal School</i> , <i>g</i>	Detroit
Education	
Max Benjamin Jaslow, A.B.	Detroit
English	
Philip Jay, D.D.S., <i>g</i>	Detroit
Dentistry	
German Levant Jenner, A.B.	Bay City
Physics	

- Frank Arthur Jensen, A.B., *Michigan State Normal College*,  
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Education
- Elsie Helen Johnson, A.B., *Northwestern University* Chicago, Ill.  
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- Evart W. Johnson, A.B. Berrien Springs  
Education
- Maurice Flower Johnson, C.E., *Michigan Agricultural College*,  
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- Elmer Maurice Jones, B.S., *Denison University*, M.S., *ibid* Adrian  
Physics
- James Albert Jones, A.B., *Ripon College* Rosendale, Wis.  
John Paul Jones, A.B., *Olivet College* Flint  
Education
- Mary Emily Jones, A.B., *University of Illinois* Amboy, Ill.  
English
- Mata Jungnitsch, A.B. Otsego  
Latin
- Arthur Alton Kalder, A.B., *Michigan State Normal College* Ypsilanti  
Education
- Bessie Bernice Kanouse, A.B., M.S., *g* Quincy  
Botany
- John Nathaniel Kantner, A.B., *Ursinus College* Ionia  
Louis Ward Keeler, Ph.B., A. M. Michigan City, Ind.  
Education
- Florence Elizabeth Kennedy, A.B., *University of Alabama* Holt, Ala.  
Kate Lillian Kern, A.B. Decatur
- Catherine Lewers Kerr, A.B., *Wellesley College* Canton, Ohio  
Maurice Reed Keyworth, A.B., *Michigan State Normal College* Hamtramck  
Education
- Kim Lee Khemmani, B.S.E. Bangkok, Siam  
Ira Franklin King, A.B. Coldwater  
Education
- Fred Hamilton Kinney, A.B. Evart  
Education
- Esther Lois Kinsley, A.B., *Indiana University* Shelbyville, Ind.  
History
- Margaret White Kirkpatrick, A.B. Ann Arbor  
Benjamin Klager, A.B. Manistee  
Education
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Public Speaking

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Mary Thomas a'Kempis Kloyda, A.B., <i>College of Saint Teresa</i>	Winona, Minn.
Mathematics	
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Orville William Laidlow, B.S., <i>Michigan Agricultural College</i>	Ypsilanti
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Education	
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Romance Languages	
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Mineralogy	
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Education	
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Public Speaking	
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Pearl Enid Lockhart, A.B.	Detroit
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Victor Ernest Lone, A.B., <i>Albion College</i>	Holly
Education	
Louise Lovejoy, A.B., <i>Albion College</i>	Litchfield

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Charles Veron McAlpine, A.B. Education	Marseilles, Ill.
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Public Speaking	
Merle Orren McClellan, B.S.E.	Ann Arbor
Bessie Ann McClintic, A.B., <i>Hillsdale College</i>	Pulaski
Mathematics	
Ella McCully, A.B.	Pittsford
English	
Ethel Williams McGill, A.B.	Ann Arbor
Daniel Arthur McGinty, A.B., <i>University of Denver, A.M., ibid, g</i>	Denver, Colo
Physiological Chemistry	
Nellie May McGregor, A.B., <i>g</i>	Detroit
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Roland Clayton McKee, A.B., <i>University of Minnesota, A.M., ibid</i>	Sioux Falls, N. Dak.
Marion McKinney, A.B., <i>University of Wisconsin, g</i>	Saginaw
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Ross Hanlin McLean, A.B., <i>Cornell University, A.M.</i>	Atlanta, Ga.
History	
Olive Annette McLouth, A.B. Education	Ann Arbor
Orison Angus MacNaughton, A.B.	Pierson
Earle Winslow McNeil, B.S., <i>Kalamazoo College</i>	Tecumseh
Education	
Ruth Ayres Chadwick MacPhail, A.B.	Detroit
Rhetoric	
Norman Raymond Frederick Maier, A.B.	Detroit
Psychology	
Mary Blanche Mann, A.B. Education	Fennville
Elizabeth Holcombe Markley, B.S. in Ed., <i>Temple University</i>	Philadelphia, Pa.
John Michael Maroukian, B.S. Chemistry	Detroit
George Leroy Martin, A.B. Chemistry	Bay City
Murry John Martin, A.B., <i>Albion College</i>	Grand Rapids
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Emma Clarissa Matthews, A.B.	Walled Lake
Latin	
Fred R. Matthews, A.B. Education	Jackson



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Norman Arthur Monter, A.B., <i>Capital University</i>	Columbus, Ohio
German	
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Education	
Arthur Ansel Metcalf, A.B., <i>Michigan State Normal College, g</i> Education	Dundee
Helen May Middleswart, A.B.	Marietta, Ohio
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Sociology	
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Harry Arthur Miller, A.B.	Mount Pleasant
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Education	
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Oral Mirvin Misenar, A.B., <i>Alma College</i>	Saint Clair
Economics	
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Nellie Deborah Moehlmann, A.B.	Detroit
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Genevieve Monsch, B.S., <i>The University of Chicago</i>	Chicago, Ill.
Cecile Wilhelmina Moon, A.B.	Detroit
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Education	
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Education	
James Byron Mott, A.B.	Kalamazoo
Education	
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Chemical Engineering	

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- Joseph Murphy, A.B.  
Physics  
Peoria, Ill.
- Gerrit Dick Muyskens, A.B., *Hope College*  
Education  
Sparta
- John Henry Muyskens, A.B., A.M.  
General Linguistics  
Ann Arbor
- William Marsh Myers, B.S., *Syracuse University*  
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Syracuse, N. Y.
- Mary Rowena Nagelberg, A.B., *Hunter College, g*  
Bronx, N. Y.
- Teiji Nakakawaji, B.L., *Tokio University*  
Tokio, Japan
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# Summary of Students\*

1923-1924

## COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

	Men	Women	Total
Resident Undergraduates .....	3428	1687	5115
Extra Mural Classes.....	178	724	902
Public Health Nursing.....	0	3	3
Total .....	3606	2414	6020

## COLLEGES OF ENGINEERING AND ARCHITECTURE

College of Engineering.....	1592	2	1594
College of Architecture.....	224	22	246
Special Classes .....	111	0	111
Total .....	1927	24	1951

## MEDICAL SCHOOL

Resident Practitioners .....	3	0	3
Fourth Year Students.....	130	9	139
Third Year Students.....	154	8	162
Second Year Students.....	126	9	135
First Year Students.....	155	8	163
Total .....	568	34	602

\*Throughout the summaries, in totalling, deductions have been made for names appearing twice in the items added.

**TRAINING SCHOOL FOR NURSES**

	Men	Women	Total
Fourth Year Students.....	0	48	48
Third Year Students.....	0	52	52
Second Year Students.....	0	68	68
Total .....	0	168	168

**LAW SCHOOL**

Fourth Year Students.....	4	0	4
Third Year Students.....	131	1	132
Second Year Students.....	132	1	133
First Year Students.....	210	2	212
Special Students .....	3	0	3
Students from Other Colleges.....	12	1	13
Total .....	492	5	497

**COLLEGE OF PHARMACY**

Undergraduates .....	72	8	80
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**COLLEGE OF DENTAL SURGERY**

Resident Practitioners .....	7	0	7
Fourth Year Students.....	137	1	138
Third Year Students.....	51	0	51
Second Year Students.....	75	1	76
First Year Students.....	81	0	81
Special Students .....	3	0	3
Dental Hygienists .....	0	6	6
Total .....	354	8	362

**SCHOOL OF EDUCATION**

	Men	Women	Total
Resident Undergraduates .....	106	195	301
Extra Mural Classes.....	52	21	73
Total .....	158	216	374

**GRADUATE SCHOOL**

Students .....	493	216	709
Net Total, exclusive of Summer Session.....	7445	3061	10506

**SUMMER SESSION OF 1923**

College of Literature, Science, and the Arts....	627	543	1170
Colleges of Engineering and Architecture.....	492	23	515
Medical School .....	262	14	276
Law School .....	159	5	164
College of Pharmacy.....	16	2	18
School of Education.....	208	142	350
Graduate School.....	346	240	586
Total .....	2110	969	3079
Grand Total, net.....	8524	3767	12291

**TOTAL, INCLUDING THE SUMMER SESSION, AFTER  
DEDUCTING FOR NAMES COUNTED TWICE**

College of Literature, Science, and the Arts.....	4664	2067	6731
Colleges of Engineering and Architecture.....	2101	44	2145
Medical School .....	720	46	766
Training School for Nurses.....	0	168	168
Law School .....	573	8	581
College of Pharmacy.....	80	10	90
College of Dental Surgery.....	354	8	362
School of Education.....	346	331	677
Graduate School .....	753	413	1166



## SUMMARY BY STATES\*

	Lit., Sci., and Arts.	Eng. and Arch.	Medicine.	Law.	Pharmacy.	Dental.	Education.	Graduate.	Summer Session.	Total.
Michigan	3976	1196	416	49	229	254	300	424	989	7833
Ohio	432	127	68	4	42	15	3	28	186	905
New York	297	164	37	3	13	24	4	21	53	616
Illinois	271	64	13	4	38	1	5	17	88	501
Pennsylvania	176	44	24	2	15	6	7	14	74	362
Indiana	175	29	38	5	23	7	10	11	42	340
New Jersey	75	19	7	—	3	5	3	7	5	124
Iowa	51	8	2	—	5	1	1	6	31	105
Missouri	44	4	4	1	0	—	4	2	21	86
Kentucky	34	7	3	—	2	—	2	3	29	80
Minnesota	37	6	5	—	5	2	1	4	12	72
Wisconsin	30	14	3	2	1	—	3	2	14	69
Massachusetts	21	15	3	—	1	1	1	7	10	59
California	14	11	7	—	3	—	1	4	9	49
Kansas	16	5	2	—	5	—	—	3	15	46
Colorado	18	4	1	—	5	—	—	4	8	40
District of Columbia	18	10	2	2	—	—	—	2	5	39
Nebraska	15	3	6	—	4	—	—	4	7	39
Oklahoma	17	8	1	—	3	—	—	3	7	39
West Virginia	15	1	1	—	1	1	—	1	18	38
Montana	22	2	2	1	4	1	—	—	4	36
Connecticut	13	13	—	—	—	—	—	1	3	31
Texas	16	3	—	—	2	1	—	3	6	31
Washington	10	6	5	1	—	—	—	1	3	26
North Dakota	4	3	2	—	4	1	—	7	3	24
South Dakota	11	2	2	—	2	—	—	4	1	22
Alabama	8	3	2	—	—	—	—	—	8	21
Georgia	5	1	4	—	1	1	—	1	8	21
Philippines	4	7	1	—	3	—	—	2	4	21
Utah	10	5	1	—	1	—	—	2	2	21
Virginia	2	6	3	—	1	—	—	3	6	21
Louisiana	10	4	—	—	1	—	—	1	4	20
Maryland	8	5	1	1	1	—	—	—	4	20
Florida	11	1	1	—	—	—	—	—	5	18
Tennessee	6	3	2	—	—	—	1	—	6	18
Arizona	7	2	—	—	2	—	—	1	3	15
New Hampshire	4	—	2	—	—	—	—	4	5	15
New Mexico	12	—	—	—	1	—	—	—	1	14
North Carolina	3	2	3	—	—	—	—	2	3	13
Porto Rico	—	7	2	1	—	1	—	1	1	13
Arkansas	3	3	—	—	3	—	—	—	3	12
Hawaii	4	2	1	1	1	—	—	—	1	10
Oregon	1	1	1	—	1	—	—	3	3	10
Maine	4	1	—	—	—	—	—	3	1	9
Rhode Island	3	1	2	—	—	—	—	—	3	9
Wyoming	4	3	—	—	2	—	—	—	—	9

\*Throughout the summary by states, for the sake of simplicity, the students in the Nurses Training School have been counted with those of the Medical School.

## SUMMARY BY STATES

	Lit., Sci., and Arts.	Eng. and Arch.	Medicine.	Law.	Pharmacy.	Dental.	Education.	Graduate.	Summer Session.	Total.
Mississippi	2	1	—	—	1	—	—	—	3	7
Vermont	1	1	2	—	—	—	—	—	3	7
Idaho	3	1	1	—	—	—	—	—	1	6
Delaware	1	1	—	—	—	—	—	—	1	3
South Carolina	2	—	—	—	—	1	—	—	—	3
Nevada	—	1	—	—	—	—	—	—	—	1
Virgin Islands	—	—	1	—	—	—	—	—	—	1
China	21	28	6	—	3	—	—	18	22	98
Ontario	43	23	4	—	3	9	1	3	8	94
South Africa	3	4	—	—	—	25	—	—	4	36
Japan	8	3	1	—	—	—	—	8	3	23
India	4	6	—	1	—	—	—	1	4	16
Argentina	—	6	—	—	—	—	—	—	1	7
Quebec	2	2	—	—	—	—	—	1	1	6
Bolivia	3	2	—	—	—	—	—	—	—	5
England	2	1	—	—	—	—	—	2	—	5
Brazil	—	3	—	—	—	—	—	1	—	4
Mexico	—	2	1	—	—	—	—	—	1	4
West Indies	1	—	2	—	—	—	—	—	—	3
Columbia	—	1	—	—	—	—	—	1	1	3
Java	2	1	—	—	—	—	—	—	—	3
Manitoba	—	1	1	—	—	—	—	—	1	3
Siam	—	2	—	—	—	—	—	—	1	3
Greece	—	2	—	—	—	—	—	—	—	2
Korea	1	—	—	—	—	—	—	1	—	2
Peru	1	1	—	—	—	—	—	—	—	2
Rumania	—	2	—	—	—	—	—	—	—	2
Turkey	1	1	—	—	—	—	—	—	—	2
Uruguay	—	2	—	—	—	—	—	—	—	2
Alberta	—	—	—	—	—	1	—	—	—	1
Asia Minor	—	—	1	—	—	—	—	—	—	1
Chile	—	—	—	—	—	—	—	—	1	1
Cuba	—	1	—	—	—	—	—	—	—	1
Denmark	—	—	—	—	—	—	—	1	—	1
Germany	—	1	—	—	—	—	—	—	—	1
Hungary	—	1	—	—	—	—	—	—	—	1
New Brunswick	—	—	—	—	—	—	—	1	—	1
Norway	—	—	—	—	—	—	—	1	—	1
Nova Scotia	—	—	1	—	—	—	—	—	—	1
Panama	—	—	—	—	—	—	—	—	1	1
Russia	—	—	1	—	—	—	—	—	—	1
Saskatchewan	—	—	—	—	—	—	—	—	1	1
Siberia	—	1	—	—	—	—	—	—	—	1
Sumatra	1	—	—	—	—	—	—	—	—	1
Sweden	—	—	—	—	—	—	—	1	—	1

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